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SAR TEST REPORT

Report Number: M070238_Cert_4965AGN_SAR_2.4

Test Sample:	Portable Tablet Convertible Notebook PC
Model Number:	T4220
Radio Modules:	WLAN 4965AGN & Bluetooth EYTF3CSFT
FCC ID:	EJE-WB0047
IC:	337J-WB0047
Tested for:	Fujitsu Australia Ltd
Date of Issue:	4th May 2007

NATA Accredited Laboratory
Number: 5292

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SAR TEST REPORT

Report Number: M070238_CERT_4965AGN_SAR_2.4
FCC ID: EJE-WB0047
IC: 337J-WB0047

Test Sample:	Portable Tablet Convertible Notebook PC
Model Number:	T4220
Radio Modules:	WLAN 4965AGN and Bluetooth EYTF3CS FT
Interface Type:	Mini-PCI Module
Device Category:	Portable Transmitter
Test Device:	Sample B type Pre-Production Unit
FCC ID:	EJE-WB0047
IC:	337J-WB0047
RF exposure Category:	General Population/Uncontrolled
Manufacturer:	Fujitsu Limited, Japan
Test Standard/s:	**1.** Evaluating Compliance with FCC Guidelines For Human Exposure to Radiofrequency Electromagnetic Fields Supplement C (Edition 01-01) to OET Bulletin 65 (Edition 97-01) **2.** Evaluation Procedure for Mobile and Portable Radio Transmitters with respect to Health Canada's Safety Code 6 for Exposure of Humans to Radio Frequency Fields. RSS-102 Issue 1 (Provisional) September 25, 1999
Statement Of Compliance:	The Fujitsu Portable Tablet Computer T4220 with Wireless LAN model 4965AGN and Bluetooth module EYTF3CS FT complied* with the FCC General public/uncontrolled RF exposure limits of 1.6mW/g per requirements of 47CFR2.1093(d). It also complied with IC RSS-102 requirements. *. Refer to compliance statement section 9.
Test Date:	30th April to 1st May 2007
Tested for:	Fujitsu Australia Pty Ltd
Test Officer:	**Peter Jakubiec**
Authorised Signature:	**Chris Zombolas** **Technical Director** **EMC Technologies Pty Ltd**

SAR TEST REPORT
Portable Tablet Convertible Notebook PC
Model: T4220
Report Number: M070238_CERT_4965AGN_SAR_2.4

1.0 INTRODUCTION

Testing was performed on the Fujitsu notebook PC, Model: T4220 with INTEL Mini-PCI Wireless LAN Module (Kedron 802.11a/b/g/n), Model: 4965AGN & TAIYO YUDEN Bluetooth Module, Model: EYTF3CSFT. The KEDRON module is an OEM product. The Mini-PCI Wireless LAN (WLAN) was tested in the dedicated host – LifeBook T Series, Model T4220.

The measurement test results mentioned herein only apply to the 2450 MHz frequency band. An additional report titled M070238_Cert_4965AGN_SAR_5.6 applies to the 5 GHz range.

2.0 GENERAL INFORMATION

(Information supplied by the client)

2.1 EUT (WLAN) Details

Transmitter:	Mini-Card Wireless LAN Module
Wireless Module:	Kedron (802.11a/b/g/n)
Model Number:	4965AGN
Manufacturer:	Intel Corporation
Modulation Type:	Direct Sequence Spread Spectrum (DSSS for 802.11b) Orthogonal Frequency Division Multiplexing (OFDM for 802.11g) Orthogonal Frequency Division Multiplexing (OFDM for 802.11a) Orthogonal Frequency Division Multiplexing (OFDM for 802.11n)
2.4 GHz (802.11b/g/n):	DBPSK, DQPSK, CCK, 16QAM and 64QAM
5 GHz (802.11a/n):	BPSK, QPSK, 16QAM and 64QAM
Maximum Data Rate:	802.11b = 11Mbps, 802.11g and 802.11a = 54Mbps 802.11n = 300 Mbps
Frequency Ranges:	2.412 –2.462 GHz for 11b/g/n 5.18 - 5.32 GHz and 5.745 - 5.825 GHz for 11a/n
Number of Channels:	11 channels for 11b/g/n 13 channels for 11a/n with 20 MHz bandwidth 6 channels for 11n with 40 MHz bandwidth
Antenna Types:	Tx: Yokowo Monopole Antenna - Model: CP335166 Location: Top edge of LCD screen Rx: Yokowo Monopole Antenna - Model: CP335176-02
Antenna gain:	Max antenna gain is less than 6 dBi. Refer antenna data provided separately
Power Supply:	3.3 VDC from PCI bus

Channels and Output power setting:

Channel and Mode	Frequency MHz	Average Output Power dBm
802.11b/g/n mode		
Channels 1, 6 and 11	2412, 2437 and 2462	15.5
802.11a/n mode with 20MHz Bandwidth		
Channels 36	5180	16.5
Channels 48	5240	16.5
Channels 64	5320	16.5
Channels 149	5745	17.5
Channels 157	5785	17.5
Channels 165	5825	17.5
802.11n mode with 40MHz Bandwidth		
Channels 38	5190	14.5
Channels 46	5230	16.5
Channels 62	5310	15.5
Channels 151	5755	17.5
Channels 159	5795	17.5

NOTE: For 5GHz SAR results refer to report titled “M070238_CERT_4965AGN_SAR_5.6”.

2.2 EUT (Bluetooth) Details

Transmitter: Bluetooth
Model Number: EYTF3CS FT
Manufacturer: TAIYO YUDEN
Network Standard: Bluetooth™ RF Test Specification
Modulation Type: Frequency Hopping Spread Spectrum (FHSS)
Frequency Range: 2402 MHz to 2480 MHz
Number of Channels: 79
Carrier Spacing: 1.0 MHz
Antenna Types: Yokowo Monopole Antenna, Model: CP335171
Location: Mid. Of top edge of LCD screen
Antenna gain: Max antenna gain is less than 6 dBi.
Refer antenna data provided separately
Max. Output Power: 4 dBm
Reference Oscillator: 16 MHz (Built-in)
Power Supply: 3.3 VDC from host.

Frequency allocation:

Channel Number	Frequency (MHz)	Bluetooth Utility power setting
1	**2402**	Power (Ext, Int) = 0, 96
2	2403	
-	-	
39	2440	
40	**2441**	
41	2442	
-	-	
78	2479	
79	**2480**	

2.3 EUT (Notebook PC) Details

EUT:	LifeBook T series
Model Name:	T4220
Serial Number:	Pre-production Sample
Manufacturer:	FUJITSU LIMITED
CPU Type and Speed:	Core2 Duo T7700 2.4GHz
LCD	12”SXGA+ / 12”XGA
Wired LAN:	Marvell 88E8055 : 10 Base-T/100 Base-TX/1000Base-T
Modem:	Agere MDC1.5 modem Model: D40
Port Replicator Model:	FPCPR65
AC Adapter Model:	SEC100P2-19.0(Sanken) / SEC100P3-19.0(Sanken, 3pin) / ADP-80NB A(Delta)
Voltage:	19 V
Current Specs:	4.22A
Watts:	80W

2.4 Test sample Accessories

One type of Fujitsu Lithium Ion Battery was used. SAR measurements were performed with the battery as shown below.

Standard Battery

Model	FPCBP155
V/mAh	10.8V/5200mAh
Cell No.	6

2.5 Test Signal, Frequency and Output Power

INTEL’s CRTU test tool was used to configure the WLAN for testing. The Portable Tablet Computer Wireless LAN had a total of 11 channels (USA model) within the 2412 to 2462 MHz frequency band and 17 channels within the frequency range 5180 – 5825 MHz. In The frequency range 2412 MHz to 2462 MHz the device operates in 2 modes, OFDM and DSSS. Within the 5180 – 5825 MHz frequency range the device operates in OFDM mode only. For the SAR measurements the device was operating in continuous transmit mode using programming codes supplied by Fujitsu. The fixed frequency channels used in the testing are shown in Table Below.

The Bluetooth module operates over 79 channels within the frequency range 2402 to 2480 MHz. It is possible for the Bluetooth module to operate simultaneously with the WLAN module (co-transmission). For the SAR measurements the device was operating in continuous transmit mode using programming codes supplied by Fujitsu. The tests were conducted with only the WLAN operating and also with the WLAN and Bluetooth module operating in co-transmission. The fixed frequency channels used in the testing are shown in the table below. The Bluetooth interface utilizes dedicated antenna, for the purpose of this report labelled antenna “D”.

The test results in this report only apply to the 2450MHz frequency range. (An additional report titled “M070238_CERT_4965AGN_SAR_5.6” is specific to the 5GHz range.)

The WLAN modules can be configured in a number of different data rates. It was found that the highest source based time averaged power was measured when using the lowest data rates available in each mode. This lowest data rate corresponds to 6Mbps in OFDM mode and 1Mbps in DSSS mode.

The frequency span of the 2450 MHz range Band was more than 10MHz consequently; the SAR levels of the test sample were measured for lowest, centre and highest channels in the applicable modes. The EUT is capable of using two antennas transmitting simultaneously (HT8 DATA mode) the power level is 3dB lower (50%) than if a single antenna was transmitting. There were no wires or other connections to the Portable Tablet Computer during the SAR measurements.

At the beginning and at the completion of the SAR tests, the conducted power of the device was measured after temporary modification of antenna connector inside the device's TX RX compartment. Measurements were performed with a calibrated Power Meter. The results of this measurement are listed in table below.

Frequency and Conducted Power Results

Channel	Channel Frequency MHz	Data Rates	Maximum Conducted Output Power - Peak Measured (dBm)
Channel 01	2412	1 (DSSS)	16.0
Channel 06	2437	1 (DSSS)	16.7
Channel 11	2462	1 (DSSS)	16.2
Channel 01	2412	6	16.2
Channel 06	2437	6	16.8
Channel 11	2462	6	16.1
Channel 01	2412	HT0	16.3
Channel 06	2437	HT0	16.7
Channel 11	2462	HT0	16.4
Channel 01	2412	HT8	13.6
Channel 06	2437	HT8	13.8
Channel 11	2462	HT8	13.5

Frequency and Conducted Power Results Bluetooth

Channel	Channel Frequency MHz	Data Rate (Mbps)	Maximum Conducted Output Power Measured (dBm)
Channel 40	2441	N/A	3.9

2.6 Battery Status

The device battery was fully charged prior to commencement of each SAR measurement. Each SAR test was completed within 30 minutes. The battery condition was monitored by measuring the RF field at a defined position inside the phantom before the commencement of each test and again after the completion of the test. The uncertainty associated with the power drift was less than 9.5% and was assessed in the uncertainty budget.

2.7 Details of Test Laboratory

2.7.1 Location

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Telephone: +61 3 9365 1000
Facsimile: +61 3 9331 7455
email: melb@emctech.com.au
website: www.emctech.com.au

2.7.2 Accreditations

EMC Technologies Pty. Ltd. is accredited by the National Association of Testing Authorities, Australia (NATA). **NATA Accredited Laboratory Number: 5292**

EMC Technologies Pty Ltd is NATA accredited for the following standards:

AS/NZS 2772.1:	RF and microwave radiation hazard measurement
ACA:	Radio communications (Electromagnetic Radiation - Human Exposure) Standard 2003
FCC:	Guidelines for Human Exposure to RF Electromagnetic Field OET65C 01/01
CENELEC:	ES59005: 1998
EN 50360: 2001	Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300 MHz – 3 GHz)
EN 50361: 2001	Basic standard for the measurement of Specific Absorption Rate related to human exposure to electromagnetic fields from mobile phones (300MHz – 3GHz)
IEEE 1528: 2003	Recommended Practice for Determining the Peak Spatial-Average Specific Absorption Rate (SAR) in the Human Head Due to Wireless Communications Devices: Measurement Techniques.

Refer to NATA website www.nata.asn.au for the full scope of accreditation.

2.7.3 Environmental Factors

The measurements were performed in a shielded room with no background RF signals. The temperature in the laboratory was controlled to within 21±1°C, the humidity was in the range 52% to 63%. The liquid parameters were measured daily prior to the commencement of each test. Tests were performed to check that reflections within the environment did not influence the SAR measurements. The noise floor of the DASY4 SAR measurement system using the SN1377 probe was less than 5μV in both air and liquid mediums.

3.0 DESCRIPTION OF SAR MEASUREMENT SYSTEM

Applicable Head Configurations	: None
Applicable Body Configurations	: Tablet Position
	: Edge On Position

3.1 Probe Positioning System

The measurements were performed with the state-of-the-art automated near-field scanning system **DASY4 V4.7 Build 53** from Schmid & Partner Engineering AG (SPEAG). The system is based on a high precision 6-axis robot (working range greater that 1.1m), which positions the SAR measurement probes with a positional repeatability of better than ±0.02 mm. The DASY4 fully complies with the OET65 C (01-01), IEEE 1528 and EN50361 SAR measurement requirements.

3.2 E-Field Probe Type and Performance

The SAR measurements were conducted with SPEAG dosimetric probe ET3DV6 Serial: 1377 (2.45 GHz) designed in the classical triangular configuration and optimised for dosimetric evaluation. The probes have been calibrated and found to be accurate to better than ±0.25 dB. The probe is suitable for measurements close to material discontinuity at the surface of the phantom. The sensors of the probe are directly loaded with Schottky diodes and connected via highly resistive lines (length = 300 mm) to the data acquisition unit.

3.3 Data Acquisition Electronics

The data acquisition electronics (DAE3) consists of a highly sensitive electrometer-grade preamplifier with auto-zeroing, a channel and gain switching multiplexer, a fast 16 bit AD-converter and a command decoder and control logic unit. The input impedance of the DAE3 box is 200 MΩ; the inputs are symmetrical and floating. Common mode rejection is above 80dB.Transmission to the PC-card is accomplished through an optical downlink for data and status information as well as an optical uplink for commands and the clock.

The mechanical probe-mounting device includes two different sensor systems for frontal and sideways probe contacts. They are used for mechanical surface detection and probe collision detection.

3.4 Calibration and Validation Procedures and Data

Prior to the SAR assessment, the system validation kit was used to verify that the DASY4 was operating within its specifications. The validation was performed at 2450 MHz with the SPEAG 2450V2 calibrated dipole.

The validation dipoles are highly symmetric and matched at the centre frequency for the specified liquid and distance to the phantom. The accurate distance between the liquid surface and the dipole centre is achieved with a distance holder that snaps onto the dipole.

System validation is performed by feeding a known power level into a reference dipole, set at a know distance from the phantom. The measured SAR is compared to the theoretically derived level.

3.4.1 Validation Results @ 2450MHz

The following tables lists the dielectric properties of the tissue simulating liquid measured prior to SAR validation. The results of the validation are listed in columns 4 and 5. The forward power into the reference dipole for SAR validation was adjusted to 250 mW.

Validation Results (Dipole: SPEAG D2450V2 SN: 724)

1. Validation Date	2. ∈r (measured)	3. σ (mho/m) (measured)	4. Measured SAR 1g (mW/g)	5. Measured SAR 10g (mW/g)
30th April 2007	38.9	1.78	13.3	6.28
1st May 2007	39.8	1.80	13.8	6.47

3.4.2 Deviation from reference validation values

The reference SAR values are derived using a reference dipole and flat section of the SAM phantom suitable for a centre frequency of 2450MHz. These reference SAR values are obtained from the IEEE Std 1528-2003 and are normalized to 1W.

The SPEAG calibration reference SAR value is the SAR validation result obtained in a specific dielectric liquid using the validation dipole (D2450V2) during calibration. The measured one-gram SAR should be within 10% of the expected target reference values shown in table below (2450MHz) below.

Deviation from reference validation values @ 2450MHz

Frequency and Date	Measured SAR 1g (mW/g)	Measured SAR 1g (Normalized to 1W)	SPEAG Calibration reference SAR Value 1g (mW/g)	Deviation From SPEAG Reference (1g)	IEEE Std 1528 reference SAR value 1g (mW/g)	Deviation From IEEE (1g)
2450MHz 30th April 2007	13.3	53.2	55.6	-4.3%	52.4	+1.4%
2450MHz 1st May 2007	13.8	55.2	55.6	0.7%	52.4	-0.72%

NOTE: All reference validation values are referenced to 1W input power.

3.4.3 Liquid Depth 15cm

During the SAR measurement process the liquid level was maintained to a level of 15cm with a tolerance of 0.5cm.

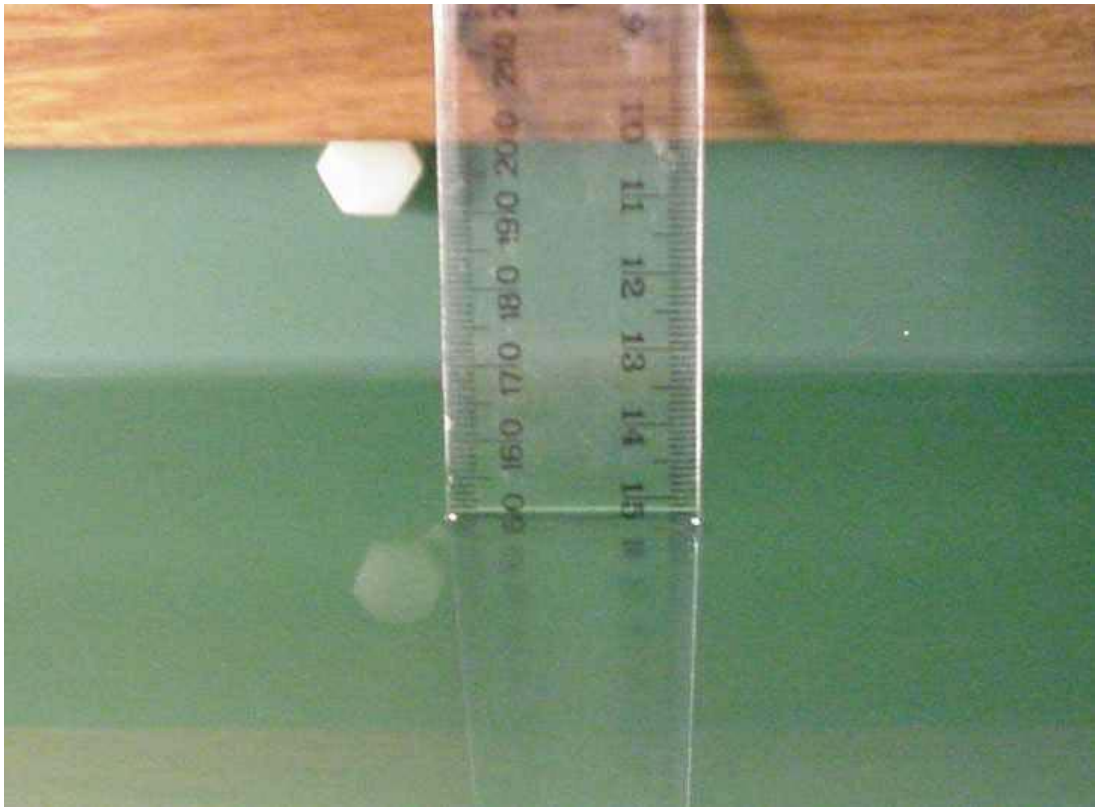


Photo of liquid Depth in Flat Phantom

3.5 Phantom Properties (Size, Shape, Shell Thickness)

The phantom used during the validations was the SAM Phantom model: TP - 1260 from SPEAG. It is a phantom with a single thickness of 2 mm and was filled with the required tissue simulating liquid. The SAM phantom support structures were all non-metallic and spaced more than one device width away in transverse directions.

For SAR testing in the body worn positions an AndreT Flat phantom P 10.1 was used. The phantom thickness is 2.0mm+/-0.2 mm and was filled with the required tissue simulating liquid. Below table provides a summary of the measured phantom properties. *Refer to Appendix C Part 4, for details of P 10.1 phantom dielectric properties and loss tangent*.

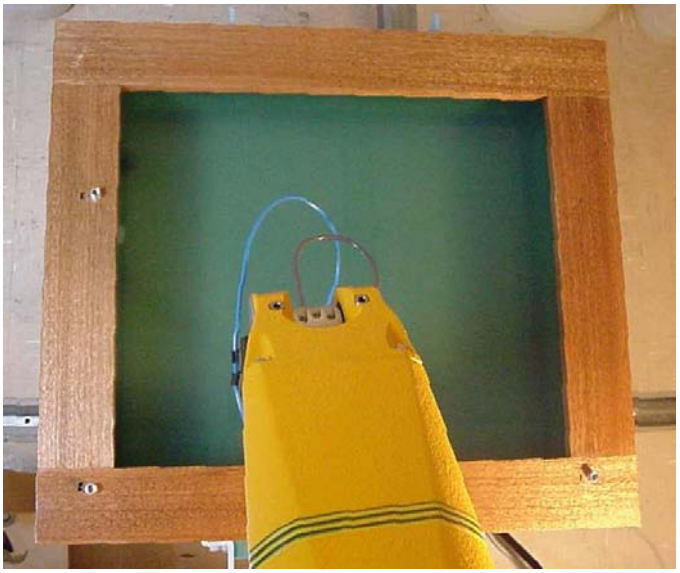
Phantom Properties

Phantom Properties	Required	Measured
Thickness of flat section	2.0mm ± 0.2mm (bottom section)	2.12-2.20mm
Dielectric Constant	<5.0	4.603 @ 300MHz (worst-case frequency)
Loss Tangent	<0.05	0.0379 @ 2500MHz (worst-case frequency)

Depth of Phantom	200mm
Length of Flat Section	620mm
Width of Flat Section	540mm

P 10.1 Flat Phantom

P 10.1 Flat Phantom



3.6 Tissue Material Properties

The dielectric parameters of the brain simulating liquid were measured prior to SAR assessment using the HP85070A dielectric probe kit and HP8753ES Network Analyser. The actual dielectric parameters are shown in the following table.

Measured Brain Simulating Liquid Dielectric Values for Validations

Frequency Band	∈r (measured range)	∈r (target)	σ (mho/m) (measured range)	σ (target)	ρ kg/m^3
2450 MHz Brain	38.9 to 39.8	39.2 ±5% (37.2 to 41.2)	1.78 to 1.80	1.80 ±5% (1.71 to 1.89)	1000

NOTE: The brain liquid parameters were within the required tolerances of ±5%.

Measured Body Simulating Liquid Dielectric Values

Frequency Band	∈r (measured range)	∈r (target)	σ (mho/m) (measured range)	σ (target)	ρ kg/m^3
2412 MHz Muscle	53.0	52.7 ±5% (50.1 to 55.3)	1.94	1.95 ±5% (1.85 to 2.05)	1000
2437 MHz Muscle	52.8 to 52.9	52.7 ±5% (50.1 to 55.3)	1.98 to 2.01	1.95 ±5% (1.85 to 2.05)	1000
2462 MHz Muscle	52.7	52.7 ±5% (50.1 to 55.3)	2.02	1.95 ±5% (1.85 to 2.05)	1000

NOTE: The brain and muscle liquid parameters were within the required tolerances of ±5%.

3.6.1 Liquid Temperature and Humidity

The humidity and dielectric/ambient temperatures were recorded during the assessment of the tissue material dielectric parameters. The difference between the ambient temperature of the liquid during the dielectric measurement and the temperature during tests was less than |2|°C.

Temperature and Humidity recorded for each day

Date	Ambient Temperature (°C)	Liquid Temperature (°C)	Humidity (%)
30th April 07	20.1	19.8	61
1st May 07	20.2	20.0	63

3.7 Simulated Tissue Composition Used for SAR Test

The tissue simulating liquids are created prior to the SAR evaluation and often require slight modification each day to obtain the correct dielectric parameters.

Table: Tissue Type: Brain @ 2450MHz
Volume of Liquid: 30 Litres

Approximate Composition	% By Weight
Distilled Water	62.7
Salt	0.5
Triton X-100	36.8

Table: Tissue Type: Muscle @ 2450MHz
Volume of Liquid: 60 Litres

Approximate Composition	% By Weight
Distilled Water	73.2
Salt	0.04
DGBE	26.7

*Refer "OET Bulletin 65 97/01 P38"

3.8 Device Holder for Laptops and Phantom

A low loss clamp was used to position the Tablet underneath the phantom surface. Small pieces of foam were then used to press the Tablet flush against the phantom surface.

Refer to Appendix A for photographs of device positioning

4.0 SAR MEASUREMENT PROCEDURE USING DASY4

The SAR evaluation was performed with the SPEAG DASY4 system. A summary of the procedure follows:

a) A measurement of the SAR value at a fixed location is used as a reference value for assessing the power drop of the EUT. The SAR at this point is measured at the start of the test, and then again at the end of the test.

b) The SAR distribution at the exposed flat section of the flat phantom is measured at a distance of 3.9 mm from the inner surface of the shell. The area covers the entire dimension of the EUT and the horizontal grid spacing is 15 mm x 15 mm. The actual Area Scan has dimensions of 61mm x 81mm surrounding the test device. Based on this data, the area of the maximum absorption is determined by Spline interpolation. The first “pre-scans” covered an area of 151 mm x 181 mm to ensure that the hotspot was correctly identified.

c) Around this point, a volume of 30 mm x 30 mm x 30 mm is assessed by measuring 7 x 7 x 7 points. On the basis of this data set, the spatial peak SAR value is evaluated with the following procedure:

(i) The data at the surface are extrapolated, since the centre of the dipoles is 2.7 mm away from the tip of the probe and the distance between the surface and the lowest measuring point is 1.2 mm. The extrapolation is based on a least square algorithm. A polynomial of the fourth order is calculated through the points in z-axes. This polynomial is then used to evaluate the points between the surface and the probe tip.

(ii) The maximum interpolated value is searched with a straightforward algorithm. Around this maximum the SAR values averaged over the spatial volumes (1 g and 10 g) are computed using the 3D-Spline interpolation algorithm. The 3D-Spline is composed of three one-dimensional splines with the “Not a knot”- condition (in x, y and z-direction). The volume is integrated with the trapezoidal – algorithm. One thousand points (10 x 10 x 10) are interpolated to calculate the averages.

(iii) All neighbouring volumes are evaluated until no neighbouring volume with a higher average value is found.

(iv) The SAR value at the same location as in Step (a) is again measured to evaluate the actual power drift.

5.0 MEASUREMENT UNCERTAINTY

The uncertainty analysis is based on the template listed in the IEEE Std 1528-2003 for both Handset SAR tests and Validation uncertainty. The measurement uncertainty of a specific device is evaluated independently and the total uncertainty for both evaluations (95% confidence level) must be less than 30%.

Uncertainty Budget for DASY4 V4.7 Build 53 – EUT SAR test 2450MHz

a	b	c	d	e= f(d,k)	f	g	h=cxf/e	i=cxg/e	k
Uncertainty Component	Sec.	Tol. (%)	Prob. Dist.	Div.	C_i (1g)	C_i (10g)	1g u_i (%)	10g u_i (%)	v_i
Measurement System									
Probe Calibration (k=1) (numerical calibration)	E.2.1	6.8	N	1	1	1	6.8	6.8	∞
Axial Isotropy	E.2.2	4.7	R	1.73	0.707	0.707	1.9	1.9	∞
Hemispherical Isotropy	E.2.2	9.6	R	1.73	0.707	0.707	3.9	3.9	∞
Boundary Effect	E.2.3	2	R	1.73	1	1	1.2	1.2	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	1	N	1	1	1	1.0	1.0	∞
Response Time	E.2.7	0.8	R	1.73	1	1	0.5	0.5	∞
Integration Time	E.2.8	2.6	R	1.73	1	1	1.5	1.5	∞
RF Ambient Conditions	E.6.1	0.075	R	1.73	1	1	0.0	0.0	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.8	R	1.73	1	1	0.5	0.5	∞
Probe Positioning with respect to Phantom Shell	E.6.3	5.7	R	1.73	1	1	3.3	3.3	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	4	R	1.73	1	1	2.3	2.3	∞
Test Sample Related									
Test Sample Positioning	E.4.2	2.9	N	1	1	1	2.9	2.9	11
Device Holder Uncertainty	E.4.1	3.6	N	1	1	1	3.6	3.6	7
Output Power Variation – SAR Drift Measurement	6.6.2	10.92	R	1.73	1	1	6.3	6.3	∞
Phantom and Tissue Parameters									
Phantom Uncertainty (shape and thickness tolerances)	E.3.1	4	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity – Deviation from target values	E.3.2	10	R	1.73	0.64	0.43	3.7	2.5	∞
Liquid Conductivity – Measurement uncertainty	E.3.3	2.5	N	1	0.64	0.43	1.6	1.1	5
Liquid Permittivity – Deviation from target values	E.3.2	10	R	1.73	0.6	0.49	3.5	2.8	∞
Liquid Permittivity – Measurement uncertainty	E.3.3	2.5	N	1	0.6	0.49	1.5	1.2	5
Combined standard Uncertainty			RSS				13.8	13.3	154
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				27.6	26.64	

Estimated total measurement uncertainty for the DASY4 measurement system was ±13.8%. The extended uncertainty (K = 2) was assessed to be ±27.6% based on 95% confidence level. The uncertainty is not added to the measurement result.

Uncertainty Budget for DASY4 V4.7 Build 53 – Validation 2450MHz

a	b	c	D	e= f(d,k)	f	g	h=cxf/e	i=cxg/e	k
Uncertainty Component	Sec.	Tol. (6%)	Prob. Dist.	Div.	C_i (1g)	C_i (10g)	1g u_i (6%)	10g u_i (6%)	v_i
Measurement System									
Probe Calibration (k=1) (standard calibration)	E.2.1	4.8	N	1	1	1	4.8	4.8	∞
Axial Isotropy	E.2.2	4.7	R	1.73	1	1	2.7	2.7	∞
Hemispherical Isotropy	E.2.2	0	R	1.73	1	1	0.0	0.0	∞
Boundary Effect	E.2.3	1	R	1.73	1	1	0.6	0.6	∞
Linearity	E.2.4	4.7	R	1.73	1	1	2.7	2.7	∞
System Detection Limits	E.2.5	1	R	1.73	1	1	0.6	0.6	∞
Readout Electronics	E.2.6	1	N	1	1	1	1.0	1.0	∞
Response Time	E.2.7	0	R	1.73	1	1	0.0	0.0	∞
Integration Time	E.2.8	0	R	1.73	1	1	0.0	0.0	∞
RF Ambient Conditions	E.6.1	0.05	R	1.73	1	1	0.0	0.0	∞
Probe Positioner Mechanical Tolerance	E.6.2	0.4	R	1.73	1	1	0.2	0.2	∞
Probe Positioning with respect to Phantom Shell	E.6.3	2.9	R	1.73	1	1	1.7	1.7	∞
Extrapolation, interpolation and Integration Algorithms for Max. SAR Evaluation	E.5	1	R	1.73	1	1	0.6	0.6	∞
Test Sample Related				□					
Dipole Axis to Liquid Surface		2	R	1.73	1	1	1.2	1.2	∞
Power Drift		4.7	R	1.73	1	1	2.7	2.7	∞
				□					□
Phantom and Tissue Parameters									
Phantom Uncertainty (shape and thickness tolerances)	E.3.1	4	R	1.73	1	1	2.3	2.3	∞
Liquid Conductivity – Deviation from target values	E.3.2	5	R	1.73	0.6	0.43	1.7	1.2	∞
Liquid Conductivity – Measurement uncertainty	E.3.3	2.5	N	1.73	0.6	0.43	0.9	0.6	5
Liquid Permittivity – Deviation from target values	E.3.2	5	R	1.73	0.6	0.49	1.7	1.4	∞
Liquid Permittivity – Measurement uncertainty	E.3.3	2.5	N	1.73	0.6	0.49	0.9	0.7	5
Combined standard Uncertainty			RSS				8.0	7.8	154
Expanded Uncertainty (95% CONFIDENCE LEVEL)			k=2				16.0	15.63	

Estimated total measurement uncertainty for the DASY4 measurement system was ±8.0%. The extended uncertainty (K = 2) was assessed to be ±16.0% based on 95% confidence level. The uncertainty is not added to the Validation measurement result.

6.0 EQUIPMENT LIST AND CALIBRATION DETAILS

SPEAG DASY4 Version V4.7 Build 53

Equipment Type	Manufacturer	Model Number	Serial Number	Calibration Due	Used For this Test?
Robot - Six Axes	Staubli	RX90BL	N/A	Not applicable	Yes
Robot Remote Control	SPEAG	CS7MB	RX90B	Not applicable	Yes
SAM Phantom	SPEAG	N/A	1260	Not applicable	Yes
SAM Phantom	SPEAG	N/A	1060	Not applicable	No
Flat Phantom	AndreT	10.1	P 10.1	Not Applicable	Yes
Flat Phantom	AndreT	9.1	P 9.1	Not Applicable	No
Flat Phantom	SPEAG	PO1A 6mm	1003	Not Applicable	No
Data Acquisition Electronics	SPEAG	DAE3 V1	359	12-July-2007	No
Data Acquisition Electronics	SPEAG	DAE3 V1	442	13-October-2007	Yes
Probe E-Field - Dummy	SPEAG	DP1	N/A	Not applicable	No
Probe E-Field	SPEAG	ET3DV6	1380	12-Dec-2007	No
Probe E-Field	SPEAG	ET3DV6	1377	14-July-2007	Yes
Probe E-Field	SPEAG	ES3DV6	3029	Not Used	No
Probe E-Field	SPEAG	EX3DV4	3563	14-July-2007	No
Antenna Dipole 300 MHz	SPEAG	D300V2	1005	26-Oct-2007	No
Antenna Dipole 450 MHz	SPEAG	D450V2	1009	14-Dec-2008	No
Antenna Dipole 900 MHz	SPEAG	D900V2	047	6-July-2008	No
Antenna Dipole 1640 MHz	SPEAG	D1640V2	314	30-June-2008	No
Antenna Dipole 1800 MHz	SPEAG	D1800V2	242	3-July-2008	No
Antenna Dipole 1950 MHz	SPEAG	D1950V3	1113	5-March-2007	No
Antenna Dipole 3500 MHz	SPEAG	D3500V2	1002	1-July-2007	No
Antenna Dipole 2450 MHz	SPEAG	D2450V2	724	13-Dec-2008	Yes
Antenna Dipole 5600 MHz	SPEAG	D5GHzV2	1008	27-Oct-2007	No
RF Amplifier	EIN	603L	N/A	*In test	No
RF Amplifier	Mini-Circuits	ZHL-42	N/A	*In test	No
RF Amplifier	Mini-Circuits	ZVE-8G	N/A	*in Test	Yes
Synthesized signal generator	Hewlett Packard	ESG-D3000A	GB37420238	*In test	Yes
RF Power Meter Dual	Hewlett Packard	437B	3125012786	*In test	Yes
RF Power Sensor	Hewlett Packard	8481H	1545A01634	*In test	Yes
RF Power Meter Dual	Gigatronics	8542B	1830125	30-May-2007	Yes
RF Power Sensor	Gigatronics	80301A	1828805	30-May-2007	Yes
RF Power Meter Dual	Hewlett Packard	435A	1733A05847	18-April-2007	Yes
RF Power Sensor	Hewlett Packard	8482A	2349A10114	18-April-2007	Yes
Network Analyser	Hewlett Packard	8714B	GB3510035	31-Aug-2007	No
Network Analyser	Hewlett Packard	8753ES	JP39240130	30-Sept-2007	Yes
Dual Directional Coupler	Hewlett Packard	778D	1144 04700	*In test	No
Dual Directional Coupler	NARDA	3022	75453	*In test	Yes

* Calibrated during the test for the relevant parameters.

7.0 OET BULLETIN 65 – SUPPLEMENT C TEST METHOD

Notebooks should be evaluated in normal use positions, typical for lap-held bottom-face only. However the number of positions will depend on the number of configurations the laptop can be operated in. The "LifeBook T series" can be used in either a conventional laptop position (see Appendix A1) or a Tablet configuration. The antenna location in the "LifeBook T series" is closest to the top of the screen when used in a conventional laptop configuration and due to the separation distances involved between the phantom and the laptop antenna, testing is not required in this position.

7.1.1 "Tablet" Position Definition (0mm spacing)

The EUT was tested in the 2.00 mm flat section of the AndreT Flat phantom P 10.1 for the "Tablet" position. The EUT was placed at the bottom of the phantom and suspended in such way that the back of the device was touching the phantom. This device orientation simulates the PC's normal use – being held on the lap of the user. A spacing of 0mm ensures that the SAR results represent a worst-case position.

7.1.2 "Edge On" Position

The EUT was tested in the (2.00 mm) flat section of the AndreT phantom for the "Edge On" position. The Antenna edge of the Transceiver was placed underneath the flat section of the phantom and suspended until the edge touched the phantom. *Refer to Appendix A for photos of measurement positions.*

7.2 List of All Test Cases (Antenna In/Out, Test Frequencies, User Modes)

The EUT has a fixed antenna. Depending on the measured SAR level up to three test channels with the test sample operating at maximum power, were recorded. The following table represents the matrix used to determine what testing was required. The worst case result was verified with the Bluetooth transmitting at full power co-transmitting with the WLAN.

Testing configurations

Phantom Configuration	*Device Mode	Antenna	Test Configurations		
			CHANNEL (LOW)	Channel (Middle)	Channel (High)
Tablet	OFDM 2.4GHz	A		X	
		B		X	
	DSSS 2.4GHz	A		X	
		B		X	
Edge On	OFDM 2.4GHz	A		X	
		B		X	
	DSSS 2.4GHz	A		X	
		B		X	

Legend

X	Testing Required in this configuration
	Testing required in this configuration only if SAR of middle channel is more than 3dB below the SAR limit or it is the worst case.

7.3 FCC/IC RF Exposure Limits for Occupational/ Controlled Exposure

Spatial Peak SAR Limits For:	
Partial-Body:	8.0 mW/g (averaged over any 1g cube of tissue)
Hands, Wrists, Feet and Ankles:	20.0 mW/g (averaged over 10g cube of tissue)

7.4 FCC/IC RF Exposure Limits for Un-controlled/Non–occupational

Spatial Peak SAR Limits For:	
Partial-Body:	1.6 mW/g (averaged over any 1g cube of tissue)
Hands, Wrists, Feet and Ankles:	4.0 mW/g (averaged over 10g cube of tissue)

8.0 SAR MEASUREMENT RESULTS

The SAR values averaged over 1g tissue masses were determined for the sample device for all test configurations listed in section 7.2.

8.1 2450MHz SAR Results

There are two modes of operation within the 2450MHz band, they include OFDM and DSSS modulations. Refer to section 7.2 for selection of all device test configurations. The table below displays the SAR results.

SAR MEASUREMENT RESULTS – OFDM Mode

Test Position	Plot No.	Ant	Bit rate Mode (Mbps)	Channel Bandwidth (MHz)	Test Channel	Test Freq (MHz)	Measured 1g SAR Results (mW/g)	Measured Drift (dB)
*Tablet Bluetooth ON	1	A	1	-	06	2437	Pre-scan Only	-
*Edge On Bluetooth ON	2	A	1	-	06	2437	Pre-scan Only	-
Edge On	3	A	1	-	06	2437	0.498	-0.274
Edge On	4	B	1	-	06	2437	0.490	-0.177

NOTE: The measurement uncertainty of 27.6% was not added to the result.

SAR MEASUREMENT RESULTS – DSSS Mode

Test Position	Plot No.	Ant A or B	Bit rate Mode (Mbps)	Channel Bandwidth (MHz)	Test Channel	Test Freq (MHz)	Measured 1g SAR Results (mW/g)	Measured Drift (dB)
Edge On	5	A	HT0	20	06	2437	0.506	0.450
Edge On	6	B	HT0	20	06	2437	0.474	0.317
Edge On	7	A	HT8	20	06	2437	0.233	-0.416
Edge On	8	B	HT8	20	06	2437	0.190	0.126
Edge On	9	A	6	-	06	2437	0.534	-0.371
Edge On	10	B	6	-	01	2412	0.413	-0.399
	11	B	6	-	06	2437	0.609	-0.089
	12	B	6	-	11	2462	0.379	-0.233
Edge On with Bluetooth On	13	B	6	-	06	2437	0.442	0.396

NOTE: The measurement uncertainty of 27.6% was not added to the result.

The highest SAR level recorded in the 2450MHz band was 0.609 mW/g as evaluated in a 1g cube of averaging mass. This value was obtained in Edge On position in the 6 Mbps OFDM mode, utilizing channel 6 (2437 MHz) and antenna B.

9.0 COMPLIANCE STATEMENT

The Fujitsu notebook PC, Model: T4220 with INTEL Mini-PCI Wireless LAN Module (Kedron 802.11a/b/g/n), Model: 4965AGN & TAIYO YUDEN Bluetooth Module, Model: EYTF3CSFT was found to comply with the FCC and RSS-102 SAR requirements.

The highest SAR level recorded was 0.609 mW/g for a 1g cube. This value was measured at 2437 MHz
(channel 6) in the “Edge On” position in 6 Mbps OFDM modulation mode at the antenna B. This was below the FCC/IC limit of 1.6 mW/g for uncontrolled exposure, even taking into account the measurement uncertainty of 27.6 %.

APPENDIX A1 TEST SAMPLE PHOTOGRAPHS

T4220 Host - Conventional Laptop Configuration

T4220 Host - Tablet Configuration

APPENDIX A2 TEST SAMPLE PHOTOGRAPHS

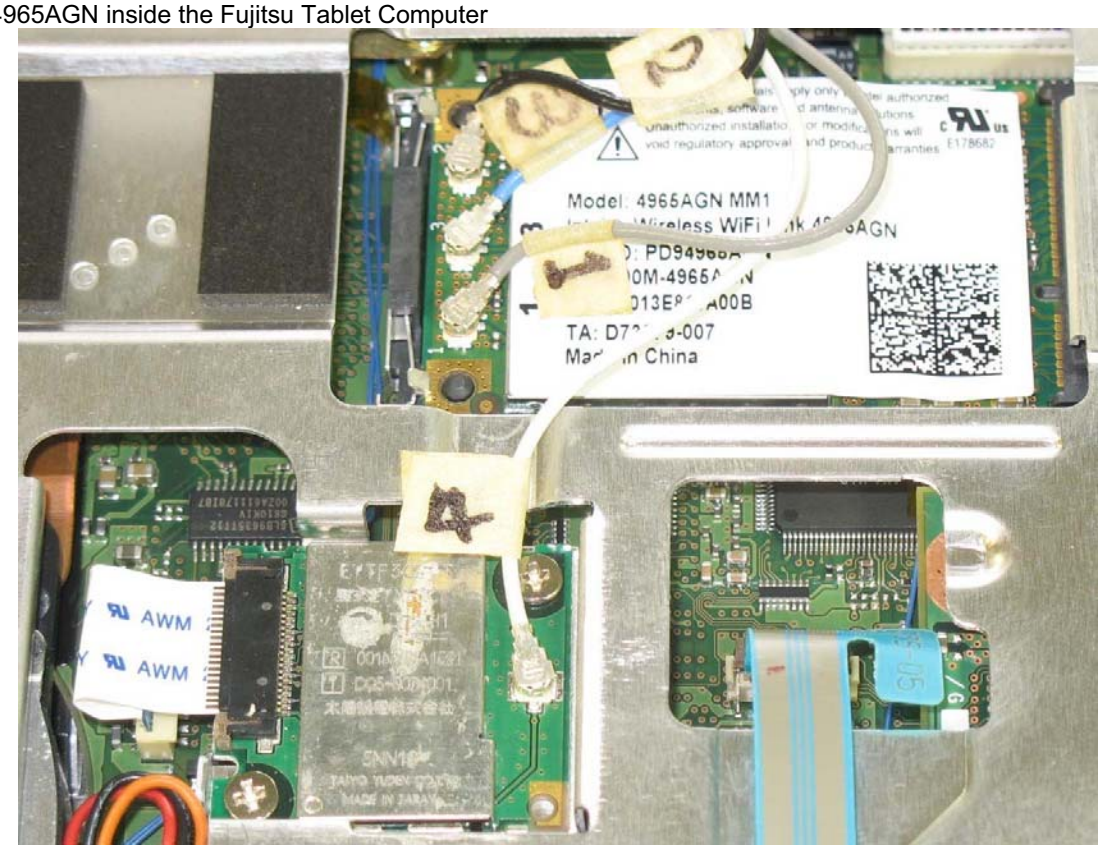
Model: 4965AGN – WLAN Module
Front

Back

APPENDIX A3 TEST SAMPLE PHOTOGRAPHS

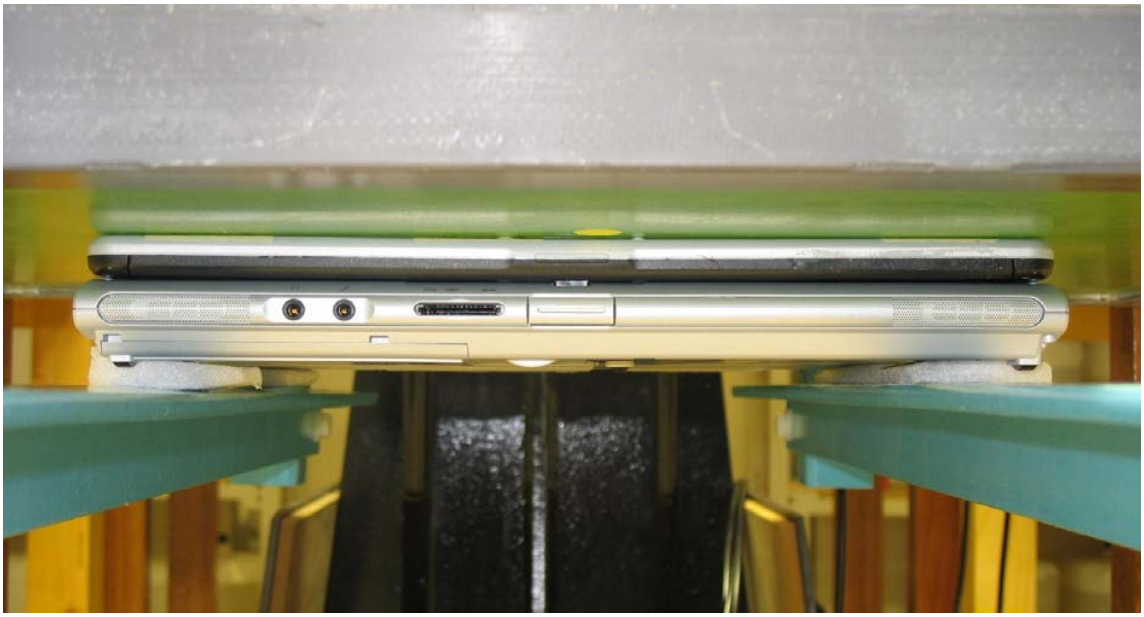
Battery 1

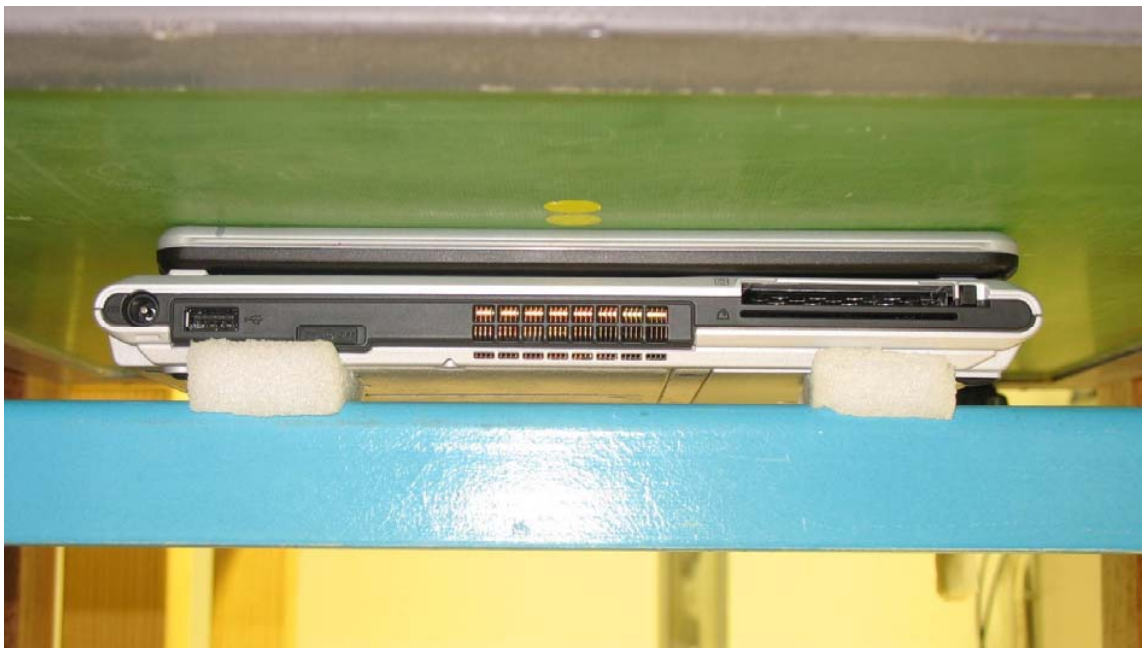
4965AGN inside the Fujitsu Tablet Computer



APPENDIX A4 TEST SETUP PHOTOGRAPHS

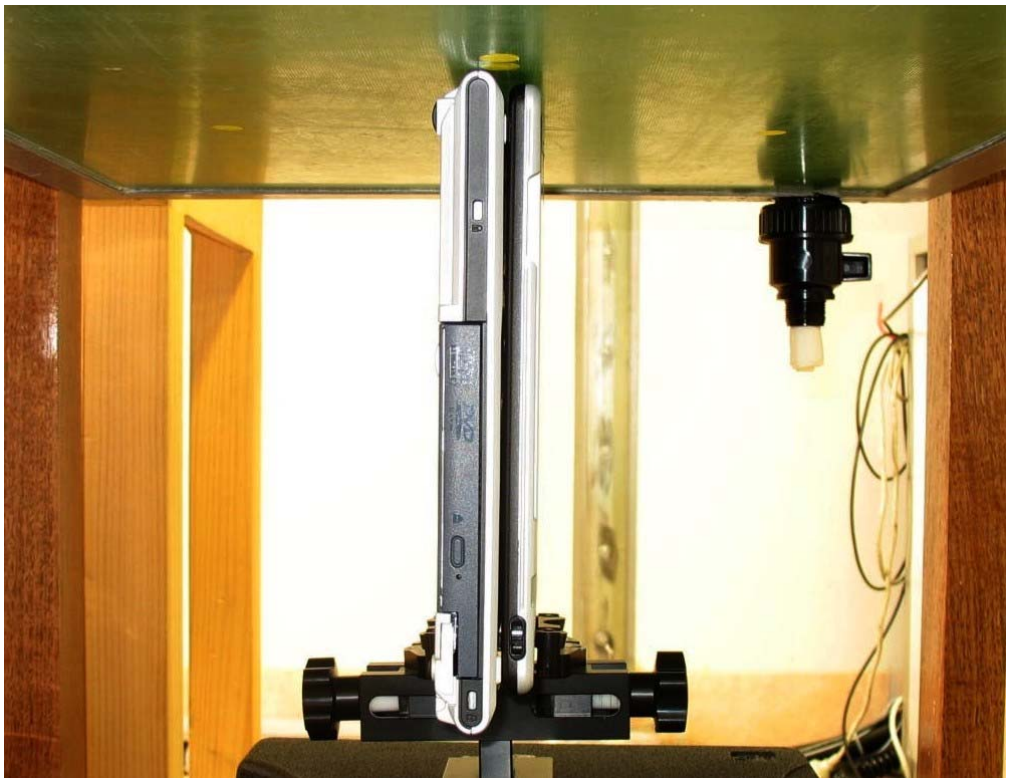
Tablet Position





APPENDIX A5 TEST SAMPLE PHOTOGRAPHS

Edge On Position



APPENDIX B PLOTS OF THE SAR MEASUREMENTS

Plots of the measured SAR distributions inside the phantom are given in this Appendix for all tested configurations. The spatial peak SAR values were assessed with the procedure described in this report.

Table: 2450 MHz DSSS Band SAR Measurement Plot Numbers

Test Position	Plot No.	Ant	Bit rate Mode (Mbps)	Channel Bandwidth (MHz)	Test Channel
*Tablet Bluetooth ON	1	A	1	-	06
*Edge On Bluetooth ON	2	A	1	-	06
Edge On	3	A	1	-	06
Edge On	4	B	1	-	06
Z-Axis graphs for Plots 3 to 4					

Table: 2450 MHz OFDM Band SAR Measurement Plot Numbers

Test Position	Plot No.	Ant	Bit rate Mode (Mbps)	Channel Bandwidth (MHz)	Test Channel
Edge On	5	A	HT0	20	06
Edge On	6	B	HT0	20	06
Edge On	7	A	HT8	20	06
Edge On	8	B	HT8	20	06
Z-Axis graphs for Plots 5 to 8					
Edge On	9	A	6	-	06
Edge On	10	B	6	-	01
	11	B	6	-	06
	12	B	6	-	11
Z-Axis graphs for Plots 9 to 12					
Edge On with Bluetooth On	13	B	6	-	06
Z-Axis graph for Plot 13					

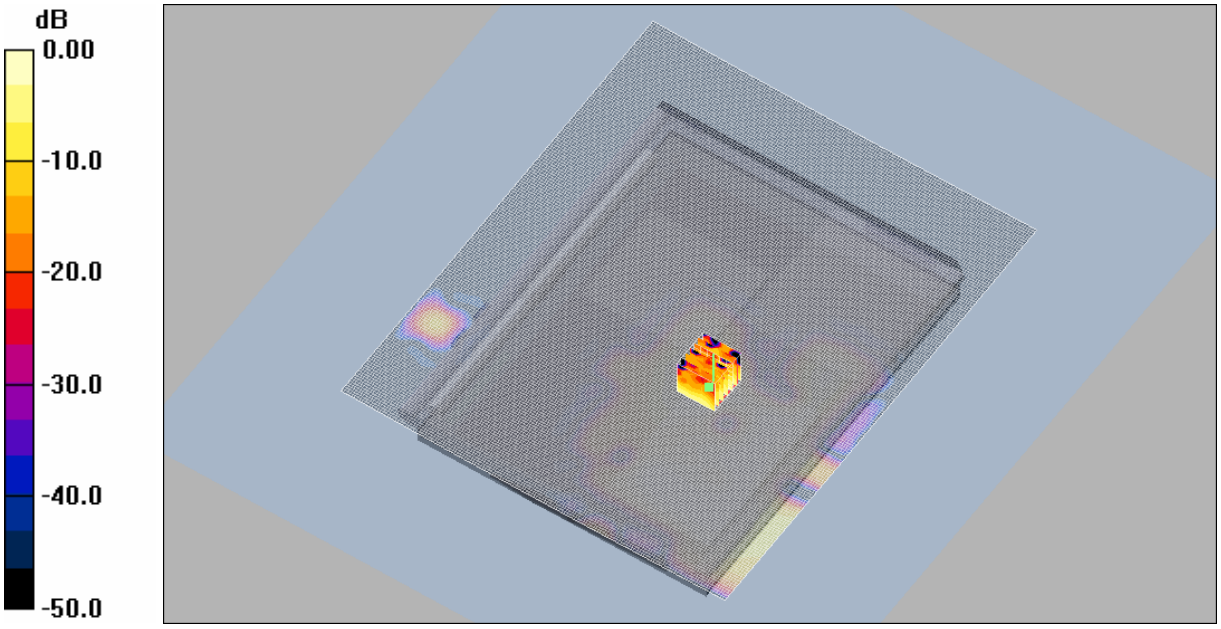
Table: 2450MHz Validation Plot

Plot 14	Validation 2450 MHz 30 April 2006
Plot 15	Validation 2450 MHz 1 May 2006
Z-Axis graphs for Plots 14 to 15	

Test Date: 30 April 2007
File Name: Tablet DSSS 2.45 GHz Antenna A Bluetooth On Prescan 30-04-07.da4
DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: DSSS 2450 MHz; Frequency: 2437 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 2.01001 mho/m, ε_r = 52.768; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 06 Test/Area Scan (151x181x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.020 mW/g



0 dB = 0.017mW/g

SAR MEASUREMENT PLOT 1

Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.8 Degrees Celsius**
Humidity	**61.0 %**

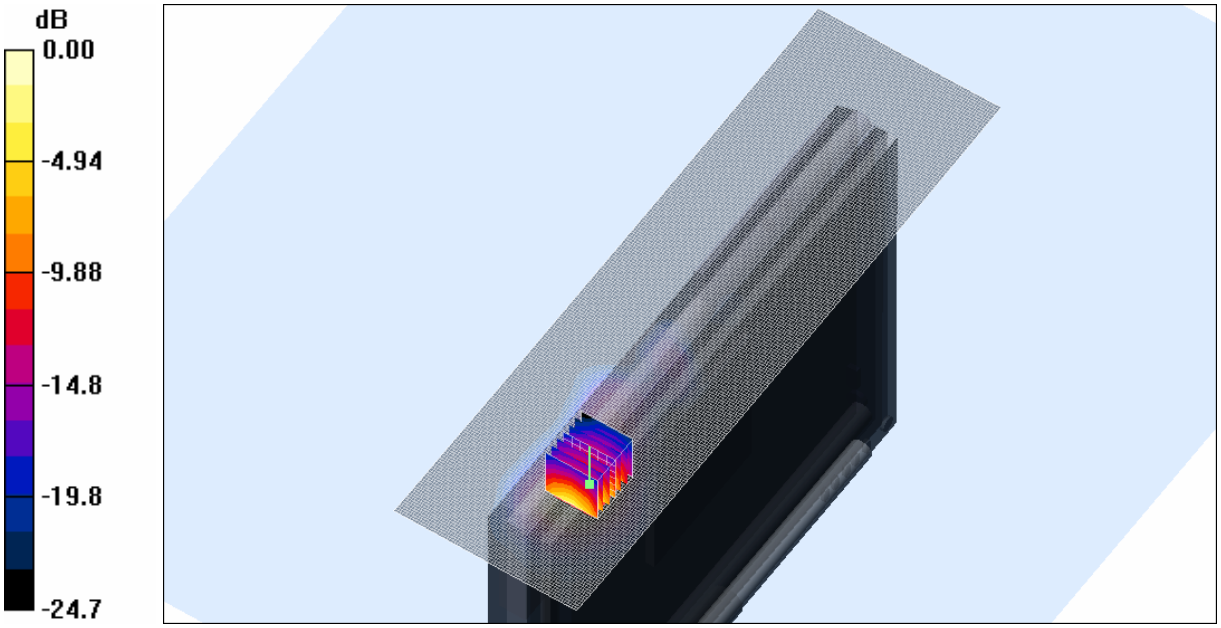
Test Date: 30 April 2007

File Name: Edge On DSSS 2.45 GHz Antenna A Bluetooth On Prescan 30-04-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: DSSS 2450 MHz; Frequency: 2437 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 2.01001 mho/m, ε_r = 52.768; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 06 Test/Area Scan (241x71x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.546 mW/g



0 dB = 0.582mW/g

SAR MEASUREMENT PLOT 2

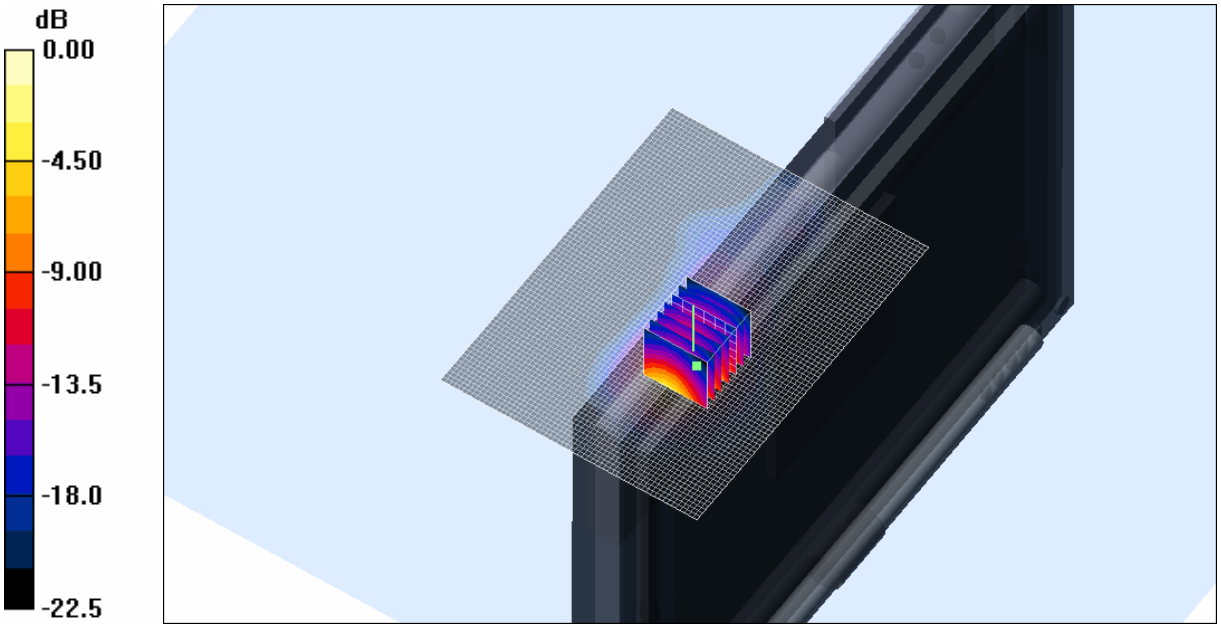
Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.8 Degrees Celsius**
Humidity	**61.0 %**

Test Date: 30 April 2007
File Name: Edge On DSSS 2.45 GHz Antenna A Bluetooth Off 30-04-07.da4
DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: DSSS 2450 MHz; Frequency: 2437 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 2.01001 mho/m, ε_r = 52.768; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 06 Test/Area Scan (61x81x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.438 mW/g

Channel 06 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.9 V/m; Power Drift = -0.274 dB
Peak SAR (extrapolated) = 1.22 W/kg
SAR(1 g) = 0.498 mW/g; SAR(10 g) = 0.215 mW/g
Maximum value of SAR (measured) = 0.562 mW/g



0 dB = 0.562mW/g

SAR MEASUREMENT PLOT 3

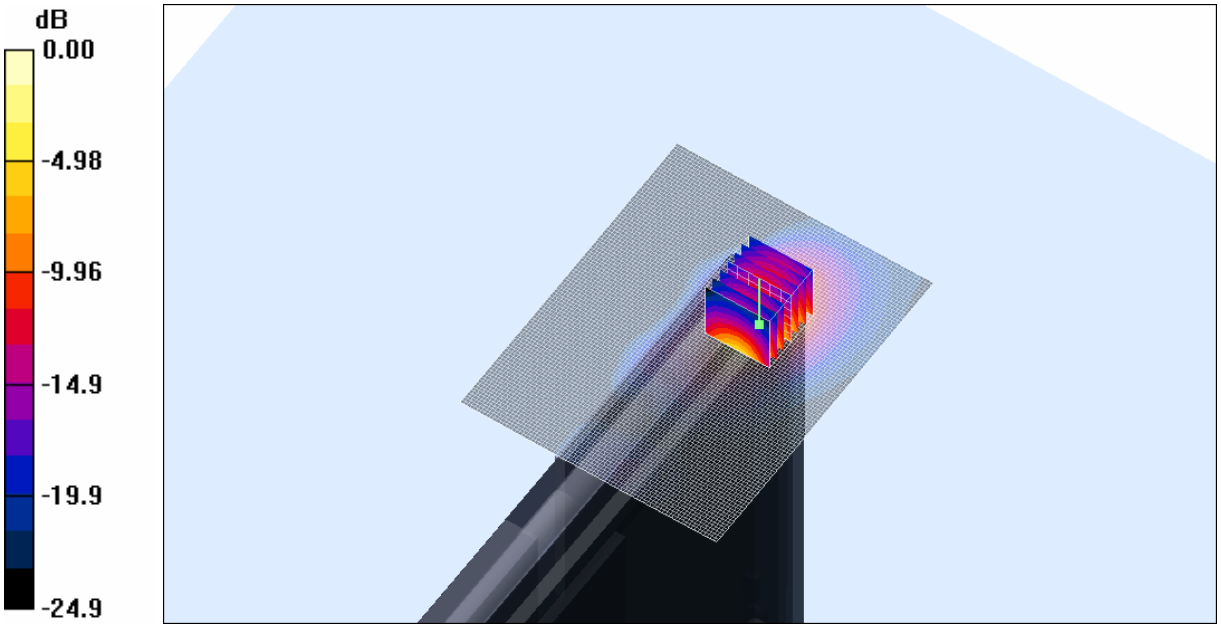
Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.8 Degrees Celsius**
Humidity	**61.0 %**

Test Date: 30 April 2007
File Name: Edge On DSSS 2.45 GHz Antenna B Bluetooth Off 30-04-07.da4
DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: DSSS 2450 MHz; Frequency: 2437 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 2.01001 mho/m, ε_r = 52.768; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 06 Test/Area Scan (101x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.582 mW/g

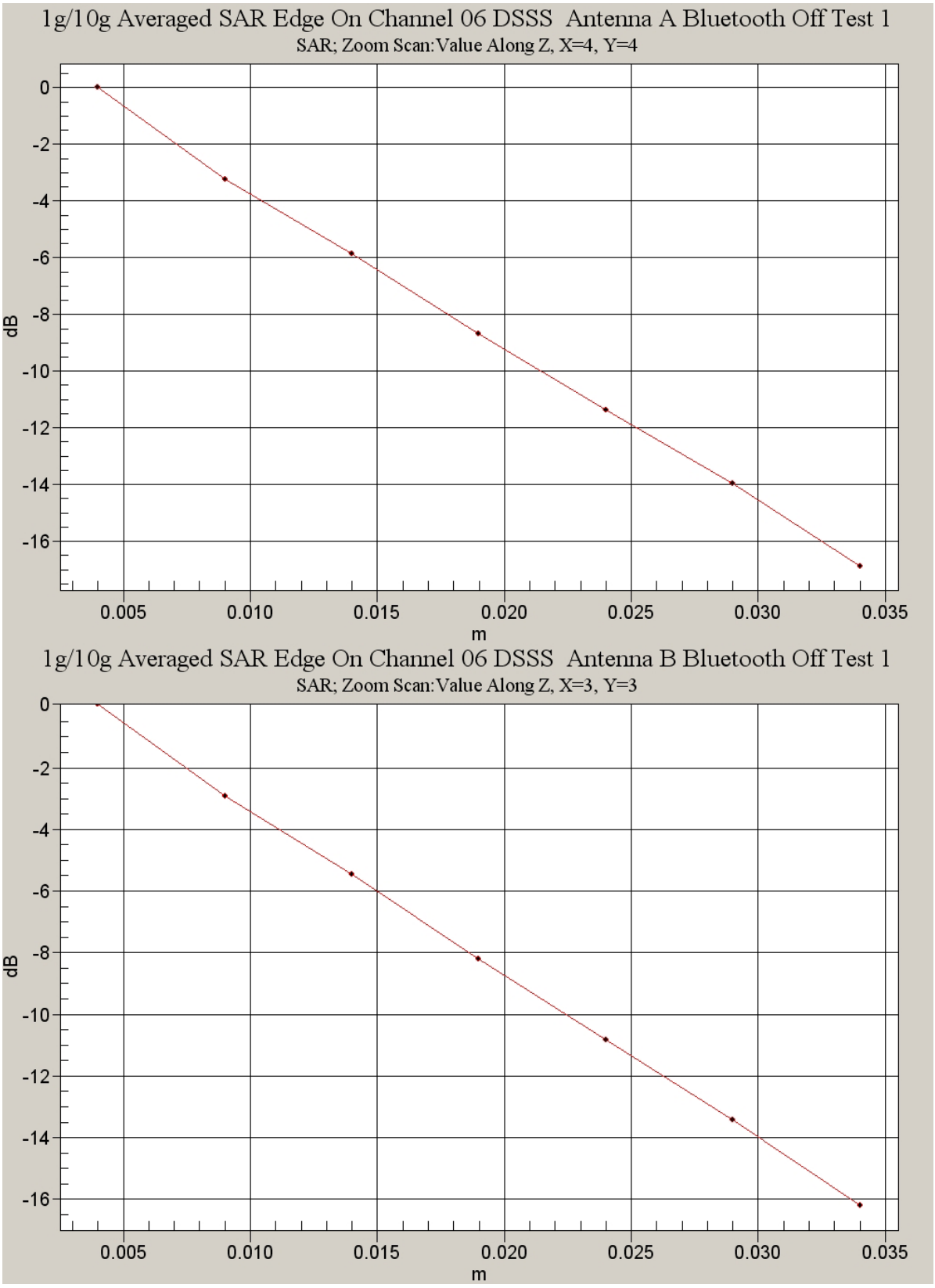
Channel 06 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.5 V/m; Power Drift = -0.177 dB
Peak SAR (extrapolated) = 1.12 W/kg
SAR(1 g) = 0.490 mW/g; SAR(10 g) = 0.210 mW/g
Maximum value of SAR (measured) = 0.566 mW/g



0 dB = 0.566mW/g

SAR MEASUREMENT PLOT 4

Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.8 Degrees Celsius**
Humidity	**61.0 %**

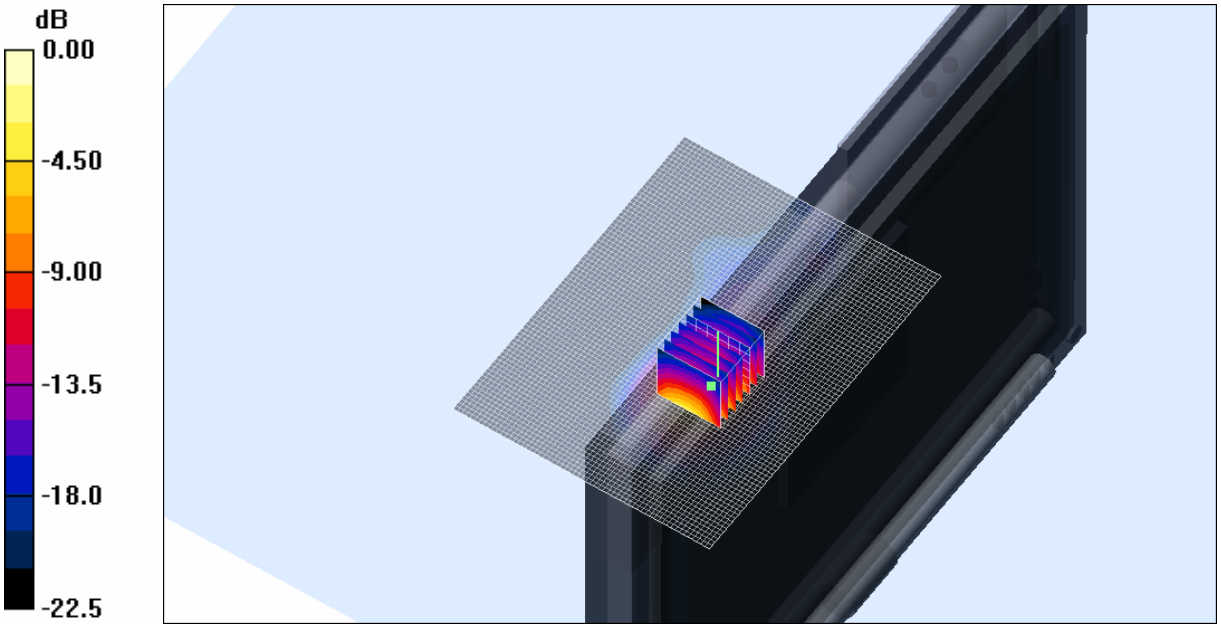


Test Date: 01 May 2007
File Name: Edge On OFDM (HT0 Mbps 20 MHz) 2.45 GHz Antenna A Bluetooth Off 01-05-07.da4
DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 2450 MHz; Frequency: 2437 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 1.97888 mho/m, ε_r = 52.88; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 06 Test/Area Scan (61x81x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.409 mW/g

Channel 06 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 17.2 V/m; Power Drift = 0.450 dB
Peak SAR (extrapolated) = 1.21 W/kg
SAR(1 g) = 0.506 mW/g; SAR(10 g) = 0.223 mW/g
Maximum value of SAR (measured) = 0.568 mW/g



0 dB = 0.568mW/g

SAR MEASUREMENT PLOT 5

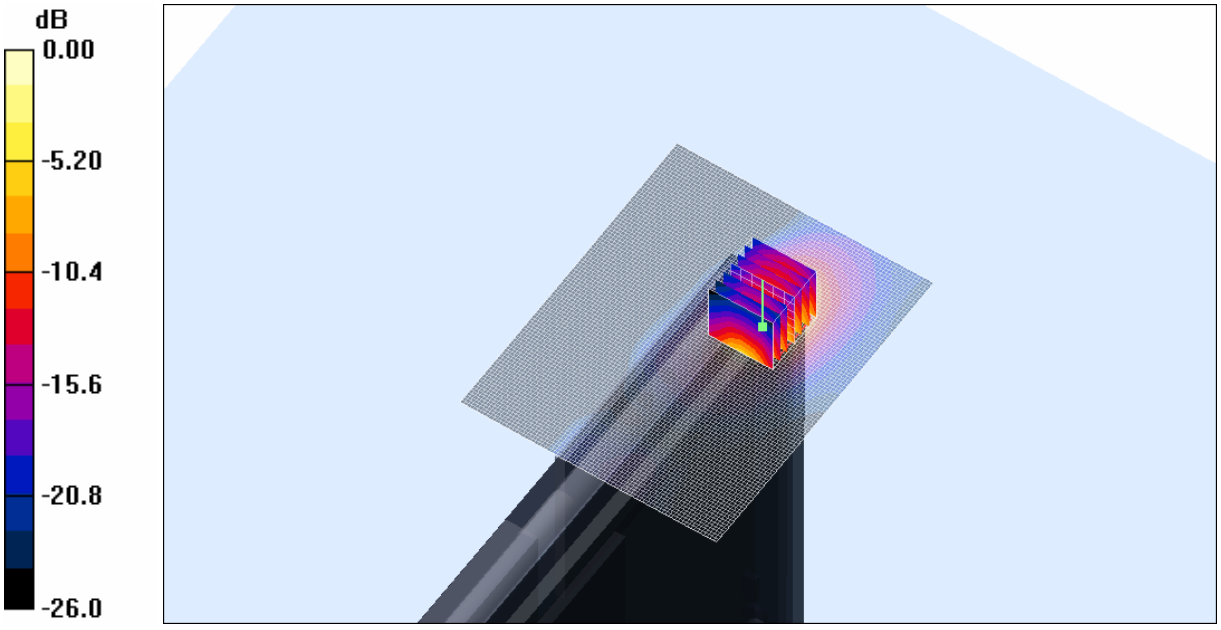
Ambient Temperature	**20.2 Degrees Celsius**
Liquid Temperature	**20.0 Degrees Celsius**
Humidity	**63.0 %**

Test Date: 01 May 2007
File Name: Edge On OFDM (HT0 Mbps 20 MHz) 2.45 GHz Antenna B Bluetooth Off 01-05-07.da4
DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 2450 MHz; Frequency: 2437 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 1.97888 mho/m, ε_r = 52.88; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 06 Test/Area Scan (101x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.515 mW/g

Channel 06 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.3 V/m; Power Drift = 0.317 dB
Peak SAR (extrapolated) = 1.09 W/kg
SAR(1 g) = 0.474 mW/g; SAR(10 g) = 0.205 mW/g
Maximum value of SAR (measured) = 0.539 mW/g



0 dB = 0.539mW/g

SAR MEASUREMENT PLOT 6

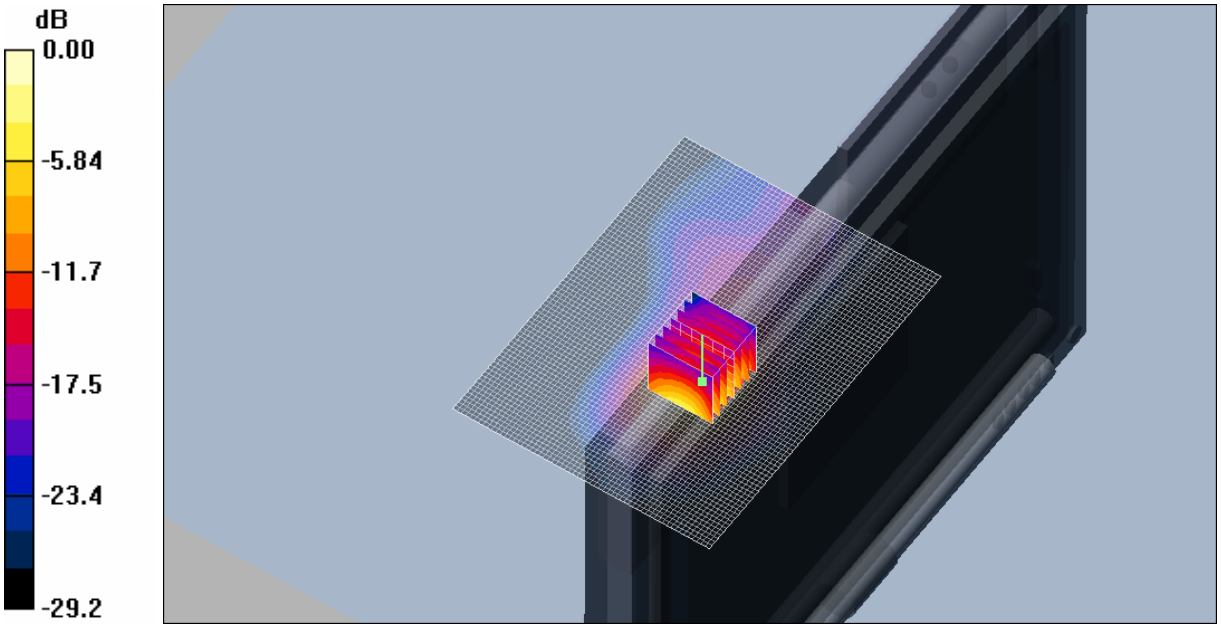
Ambient Temperature	**20.2 Degrees Celsius**
Liquid Temperature	**20.0 Degrees Celsius**
Humidity	**63.0 %**

Test Date: 01 May 2007
File Name: Edge On OFDM (HT8 Mbps 20 MHz) 2.45 GHz Antenna A Bluetooth Off 01-05-07.da4
DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 2450 MHz; Frequency: 2437 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 1.97888 mho/m, ε_r = 52.88; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 06 Test/Area Scan (61x81x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.178 mW/g

Channel 06 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 13.4 V/m; Power Drift = -0.416 dB
Peak SAR (extrapolated) = 0.568 W/kg
SAR(1 g) = 0.233 mW/g; SAR(10 g) = 0.100 mW/g
Maximum value of SAR (measured) = 0.278 mW/g



0 dB = 0.278mW/g

SAR MEASUREMENT PLOT 7

Ambient Temperature	**20.2 Degrees Celsius**
Liquid Temperature	**20.0 Degrees Celsius**
Humidity	**63.0 %**

Test Date: 01 May 2007

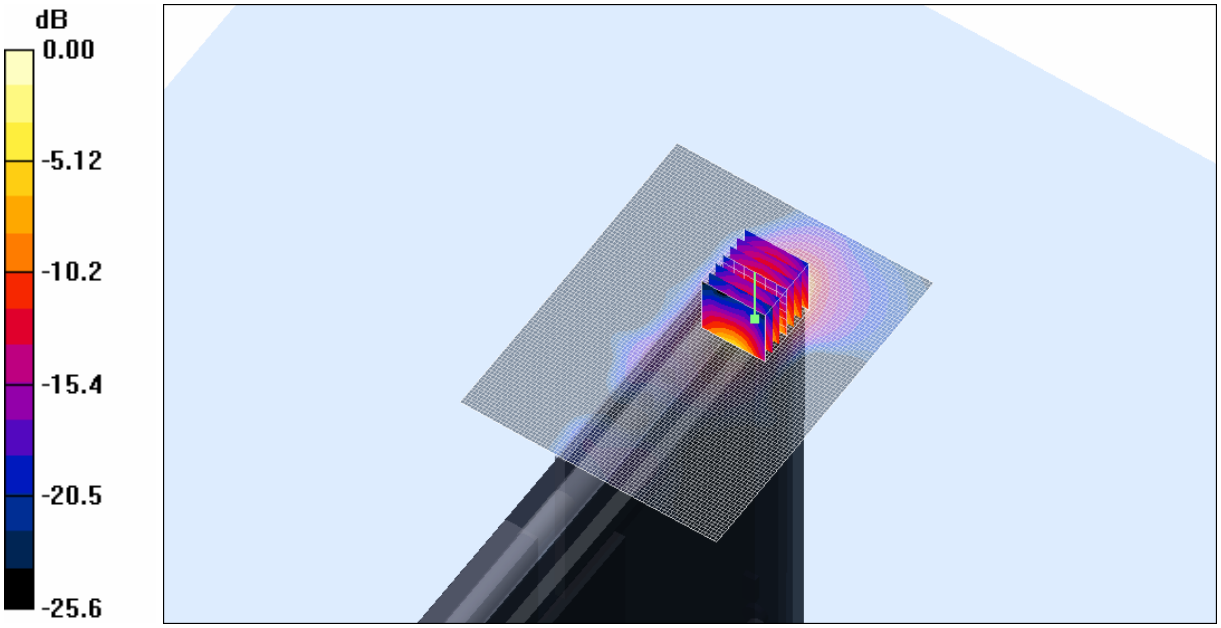
File Name: Edge On OFDM (HT8 Mbps 20 MHz) 2.45 GHz Antenna B Bluetooth Off 01-05-07.da4

DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 2450 MHz; Frequency: 2437 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 1.97888 mho/m, ε_r = 52.88; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 06 Test/Area Scan (101x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.202 mW/g

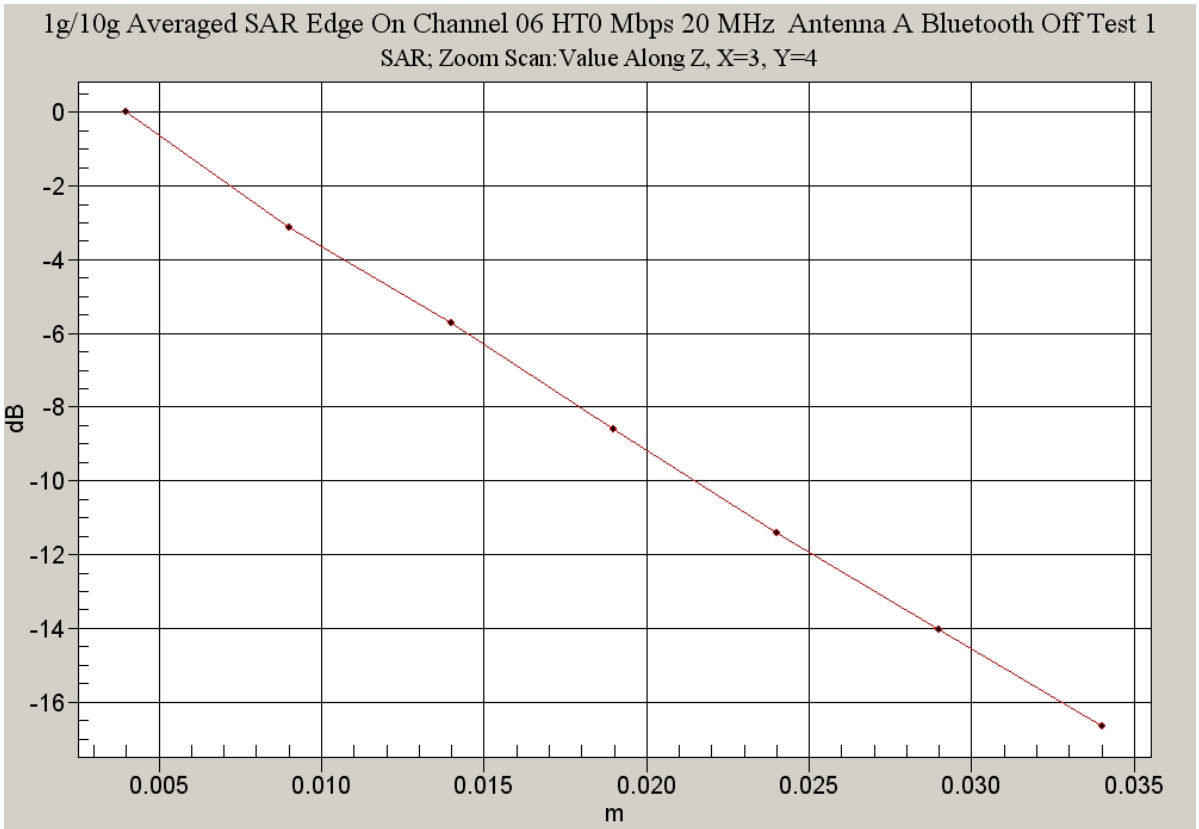
Channel 06 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 10.3 V/m; Power Drift = 0.126 dB
Peak SAR (extrapolated) = 0.435 W/kg
SAR(1 g) = 0.190 mW/g; SAR(10 g) = 0.082 mW/g
Maximum value of SAR (measured) = 0.216 mW/g

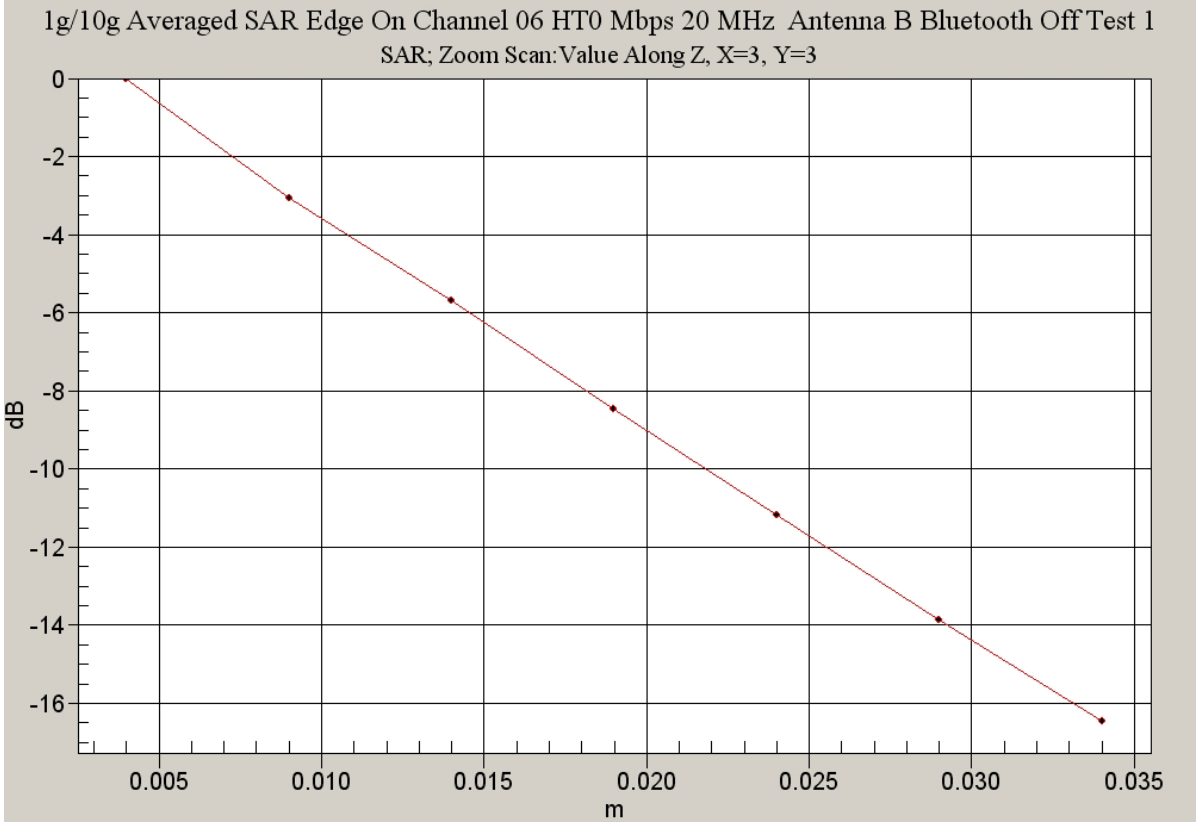


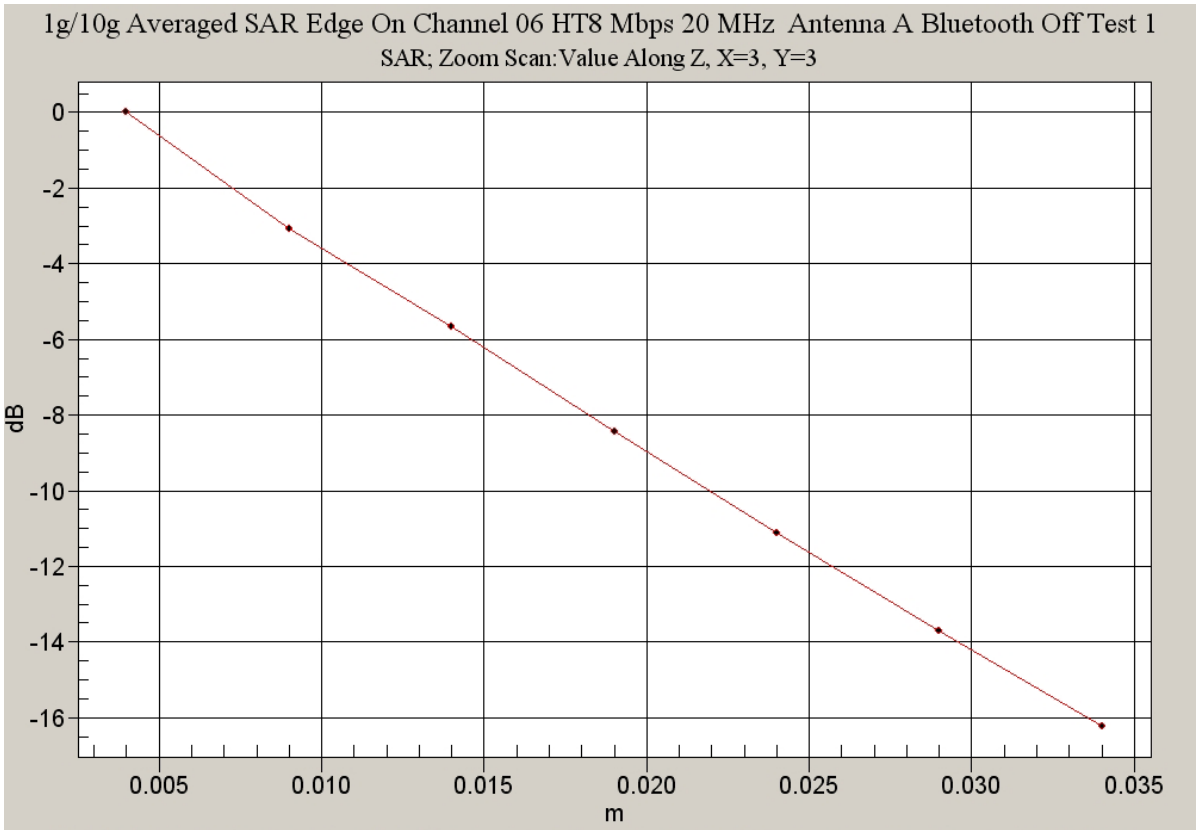
0 dB = 0.216mW/g

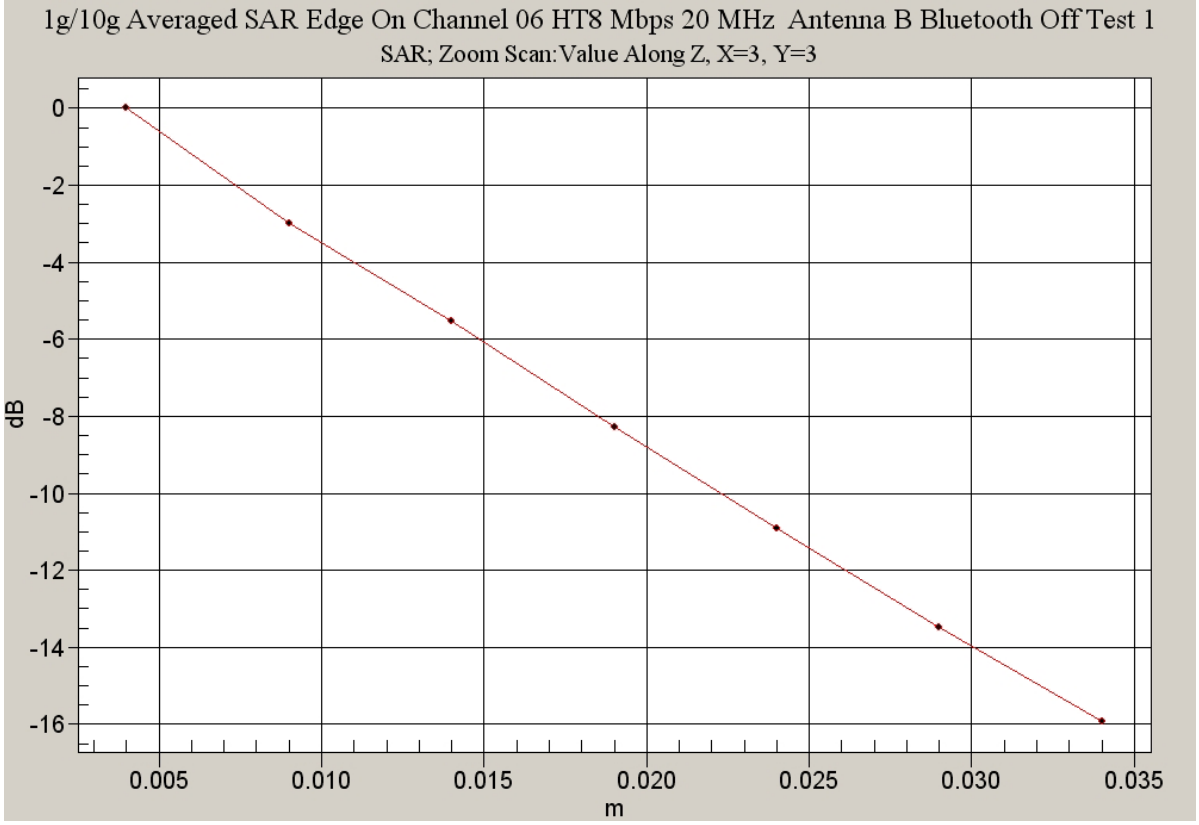
SAR MEASUREMENT PLOT 8

Ambient Temperature	**20.2 Degrees Celsius**
Liquid Temperature	**20.0 Degrees Celsius**
Humidity	**63.0 %**







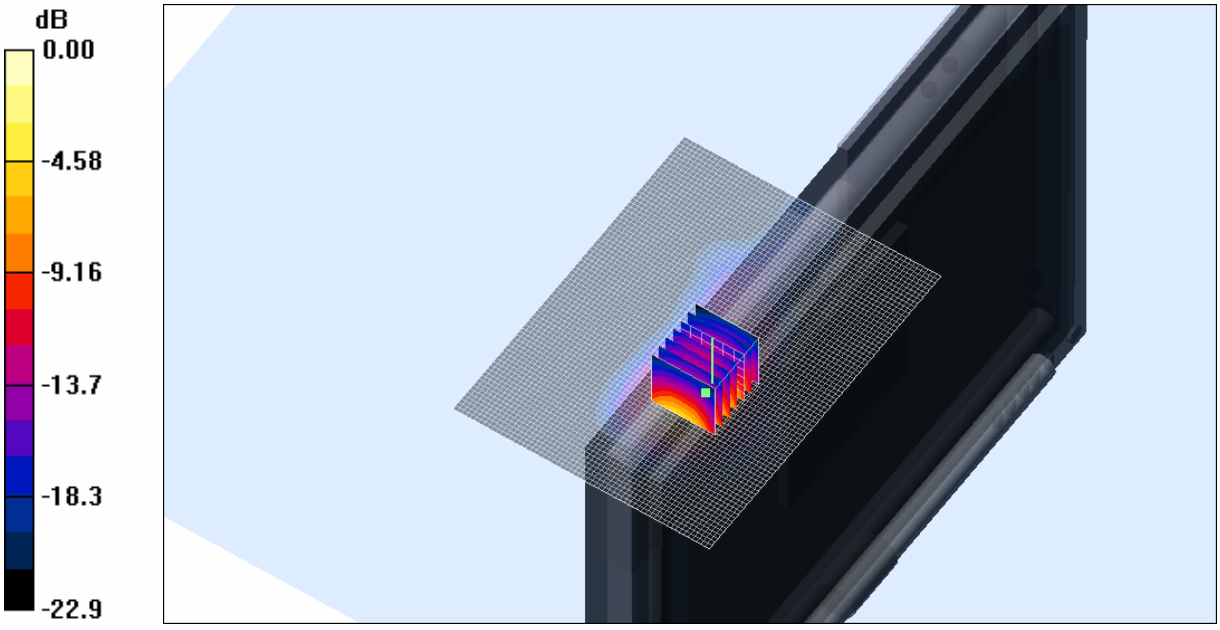


Test Date: 30 April 2007
File Name: Edge On OFDM 2.45 GHz Antenna A Bluetooth Off 30-04-07.da4
DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 2450 MHz; Frequency: 2437 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 2.01001 mho/m, ε_r = 52.768; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 06 Test/Area Scan (61x81x1): Measurement grid: dx=20mm, dy=20mm
Maximum value of SAR (interpolated) = 0.515 mW/g

Channel 06 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 18.4 V/m; Power Drift = -0.371 dB
Peak SAR (extrapolated) = 1.34 W/kg
SAR(1 g) = 0.534 mW/g; SAR(10 g) = 0.232 mW/g
Maximum value of SAR (measured) = 0.617 mW/g



0 dB = 0.617mW/g

SAR MEASUREMENT PLOT 9

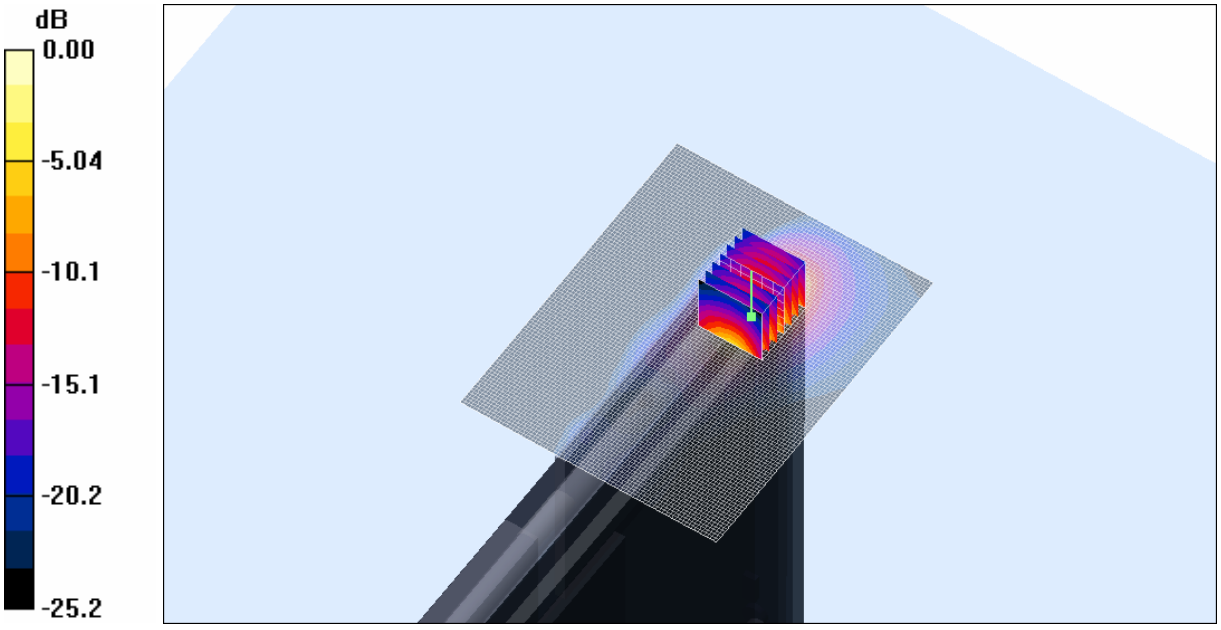
Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.8 Degrees Celsius**
Humidity	**61.0 %**

Test Date: 01 May 2007
File Name: Edge On OFDM 2.45 GHz Antenna B Bluetooth Off 01-05-07.da4
DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 2450 MHz; Frequency: 2412 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 1.94259 mho/m, ε_r = 53.0363; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 01 Test/Area Scan (101x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.458 mW/g

Channel 01 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.5 V/m; Power Drift = -0.399 dB
Peak SAR (extrapolated) = 0.953 W/kg
SAR(1 g) = 0.413 mW/g; SAR(10 g) = 0.178 mW/g
Maximum value of SAR (measured) = 0.484 mW/g



0 dB = 0.484mW/g

SAR MEASUREMENT PLOT 10

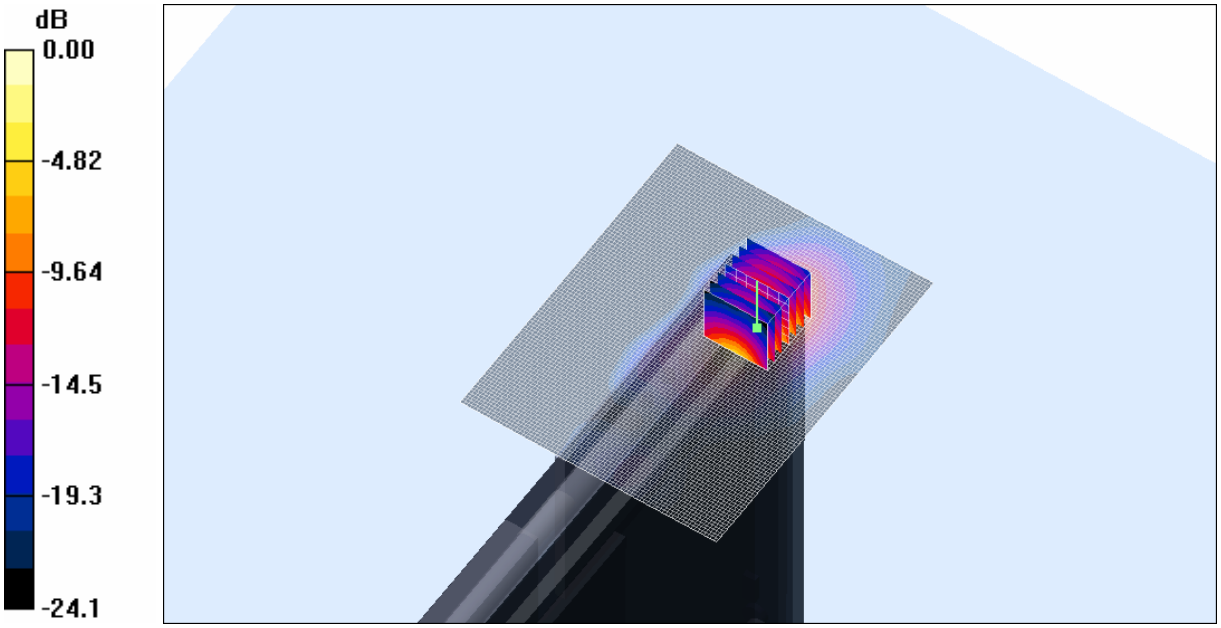
Ambient Temperature	**20.2 Degrees Celsius**
Liquid Temperature	**20.0 Degrees Celsius**
Humidity	**63.0 %**

Test Date: 30 April 2007
File Name: Edge On OFDM 2.45 GHz Antenna B Bluetooth Off 30-04-07.da4
DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 2450 MHz; Frequency: 2437 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 2.01001 mho/m, ε_r = 52.768; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 06 Test/Area Scan (101x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.699 mW/g

Channel 06 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 19.5 V/m; Power Drift = -0.089 dB
Peak SAR (extrapolated) = 1.39 W/kg
SAR(1 g) = 0.609 mW/g; SAR(10 g) = 0.263 mW/g
Maximum value of SAR (measured) = 0.698 mW/g



0 dB = 0.698mW/g

SAR MEASUREMENT PLOT 11

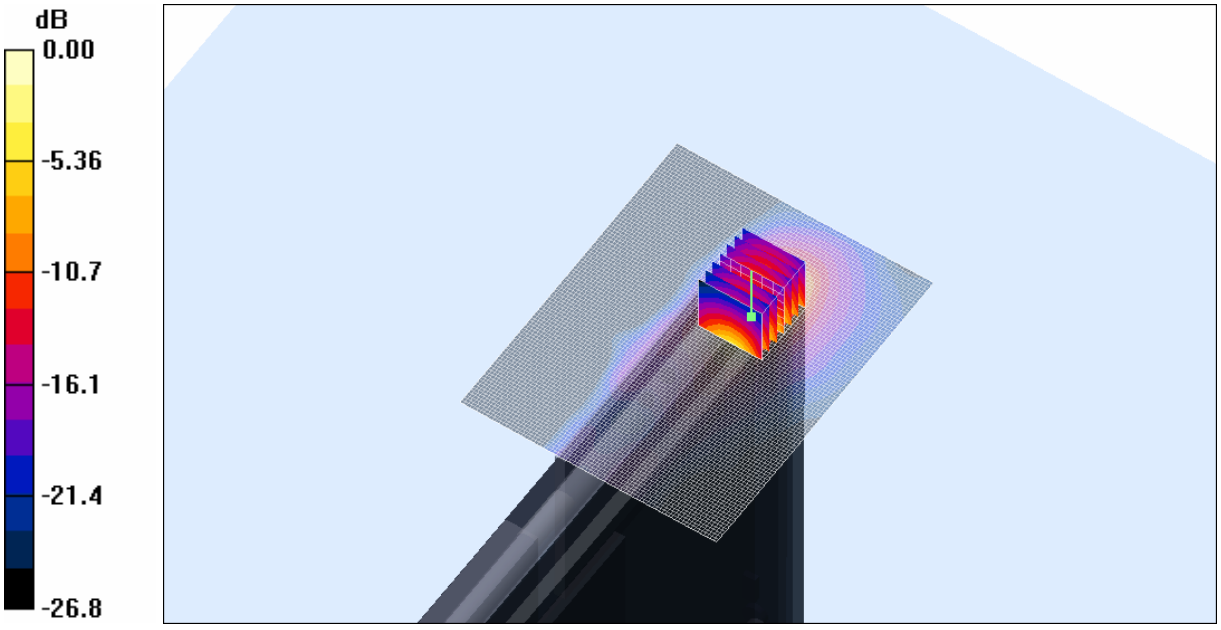
Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.8 Degrees Celsius**
Humidity	**61.0 %**

Test Date: 01 May 2007
File Name: Edge On OFDM 2.45 GHz Antenna B Bluetooth Off 01-05-07.da4
DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 2450 MHz; Frequency: 2462 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 2.01673 mho/m, ε_r = 52.7066; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 11 Test/Area Scan (101x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.431 mW/g

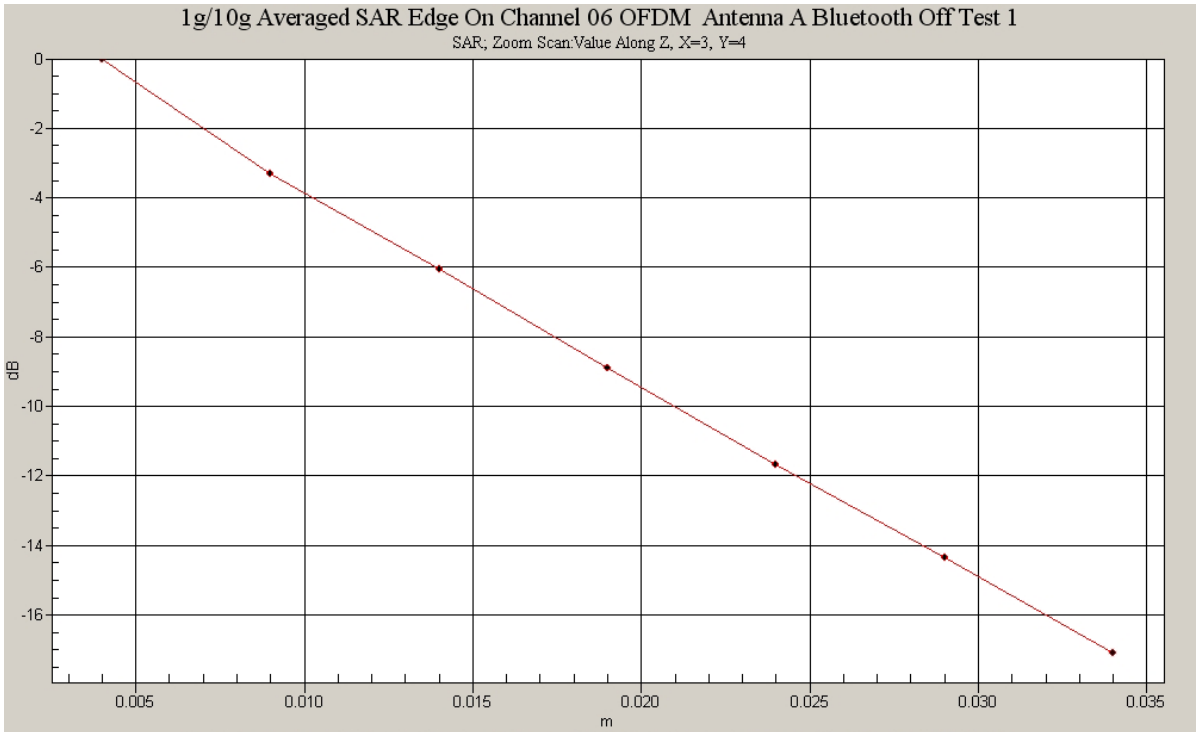
Channel 11 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 15.5 V/m; Power Drift = -0.233 dB
Peak SAR (extrapolated) = 0.870 W/kg
SAR(1 g) = 0.379 mW/g; SAR(10 g) = 0.164 mW/g
Maximum value of SAR (measured) = 0.440 mW/g

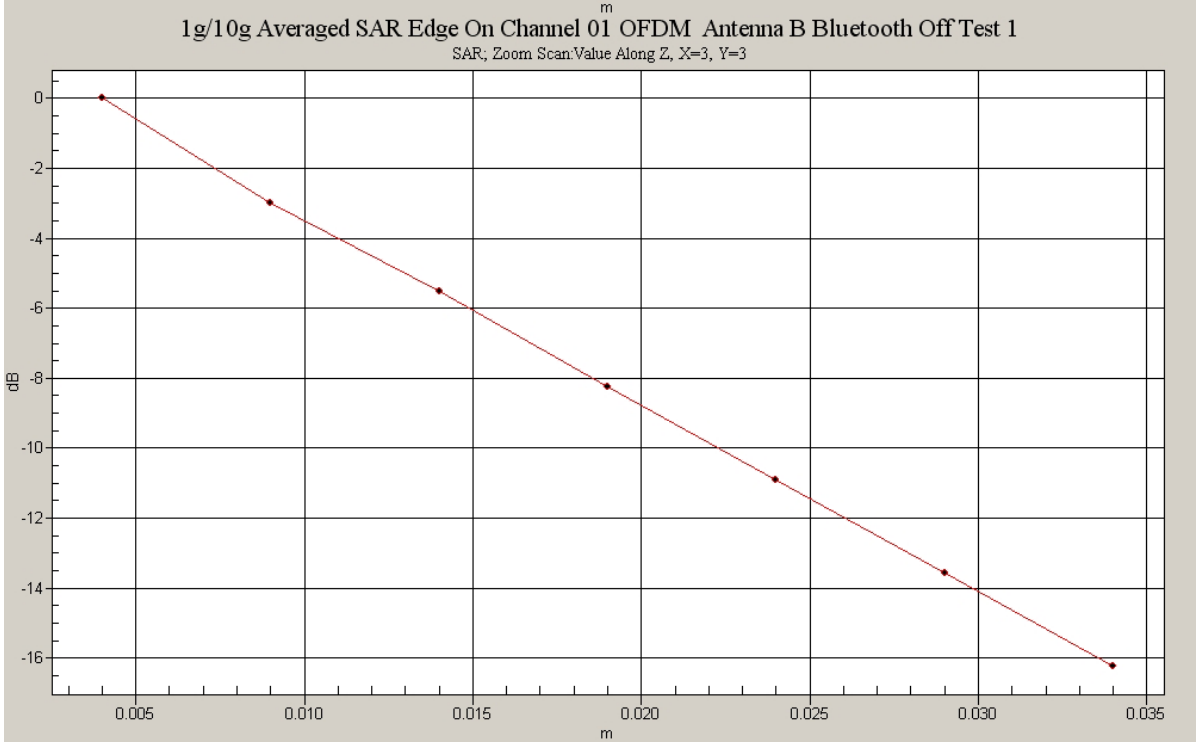


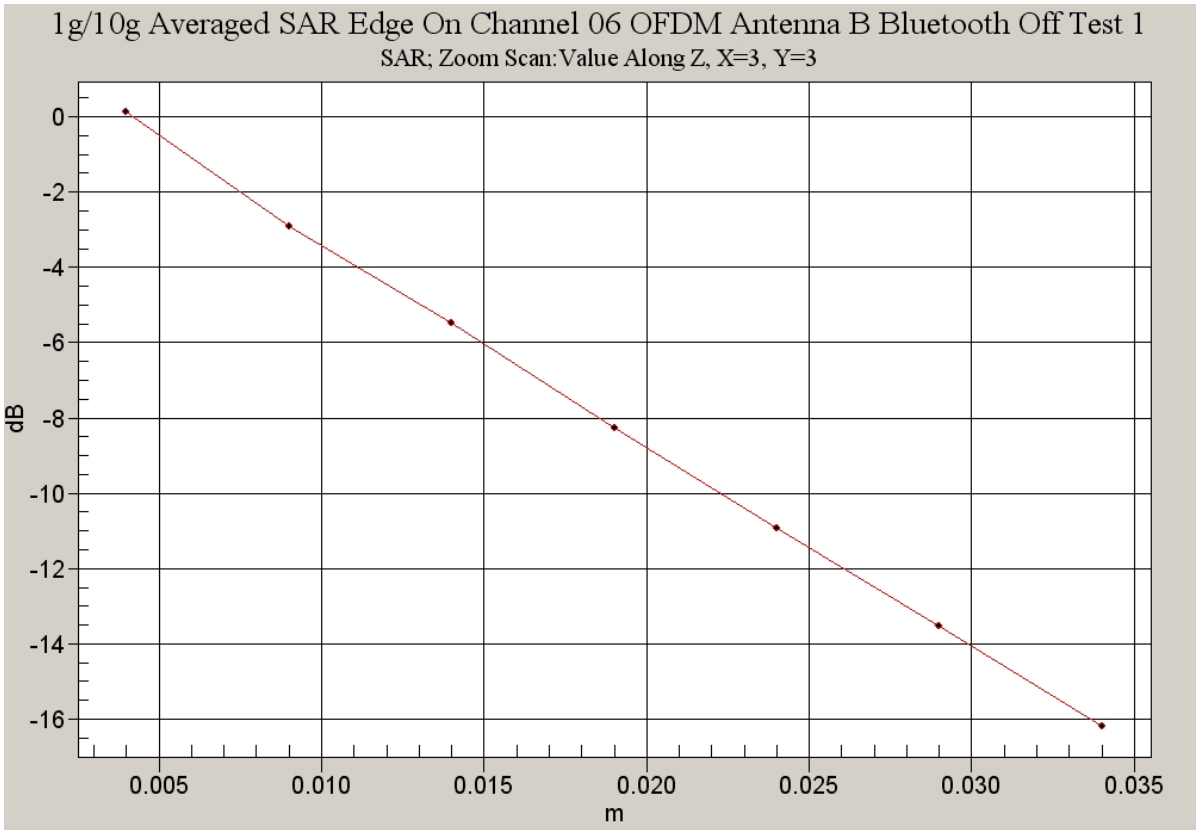
0 dB = 0.440mW/g

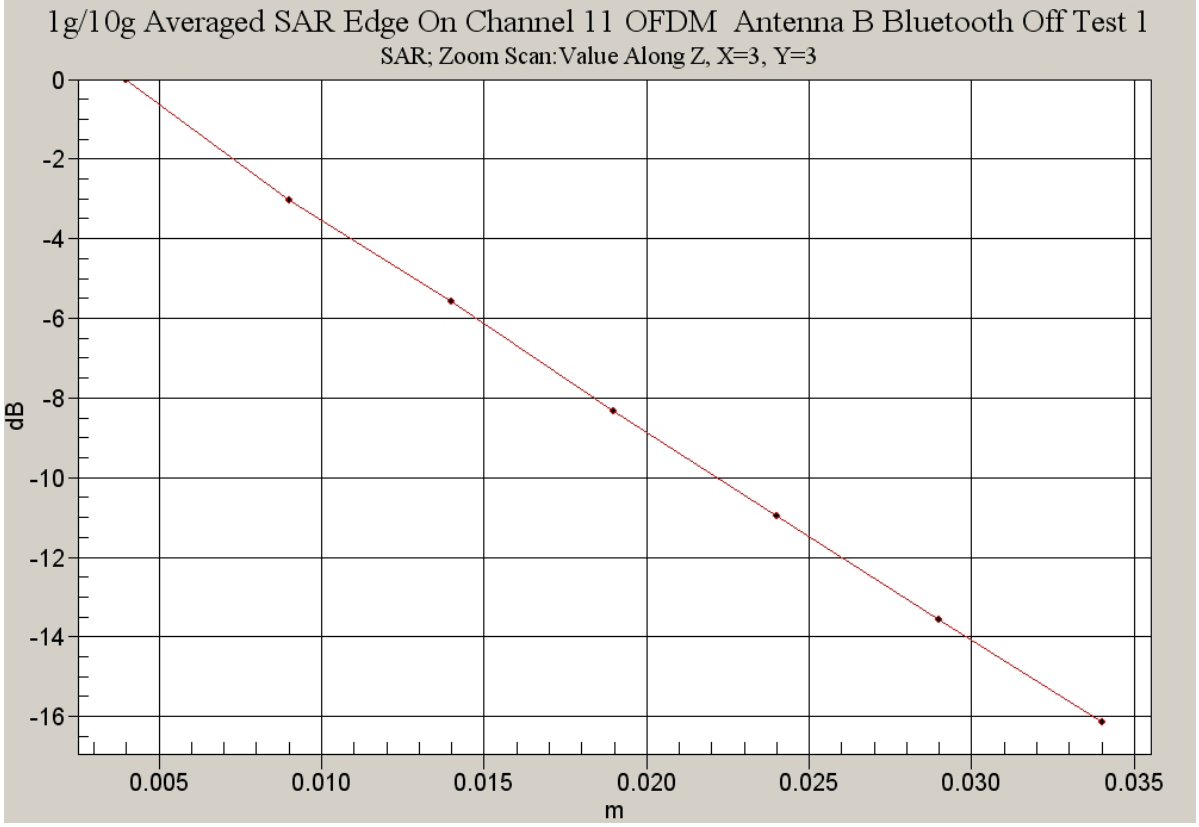
SAR MEASUREMENT PLOT 12

Ambient Temperature	**20.2 Degrees Celsius**
Liquid Temperature	**20.0 Degrees Celsius**
Humidity	**63.0 %**







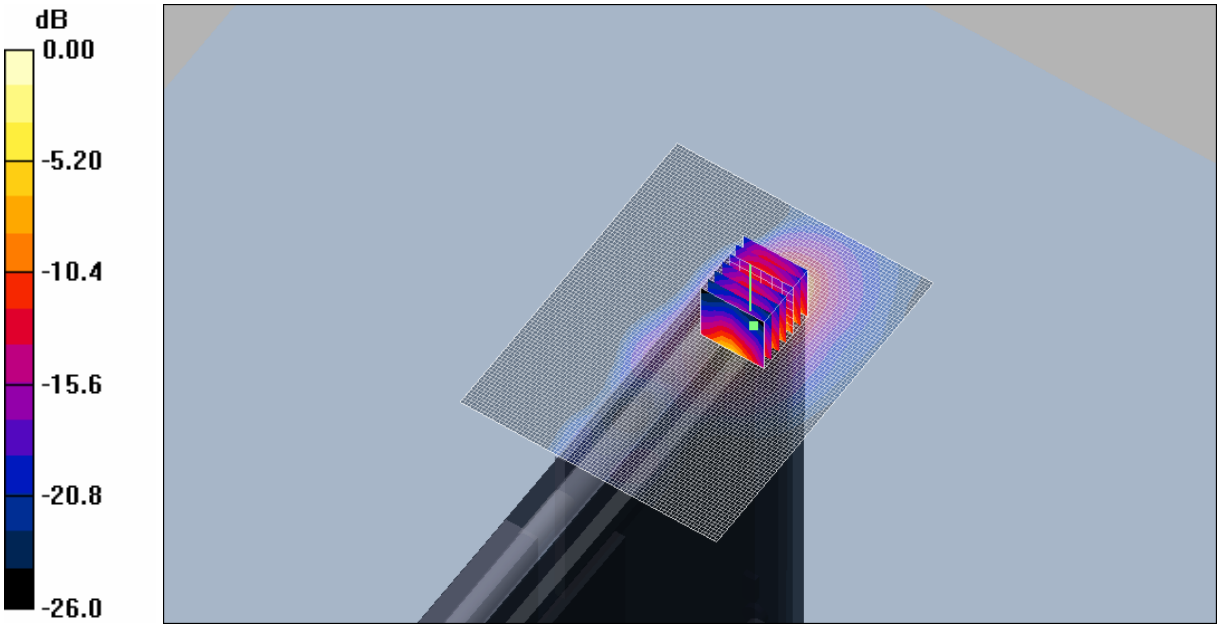


Test Date: 01 May 2007
File Name: Edge On OFDM 2.45 GHz Antenna B Bluetooth On 01-05-07.da4
DUT: Fujitsu Tablet Saratoga with Kedron 11abgn and Bluetooth; Type: 4965 AGN MM1; Serial: MAC: 0013E811A00B

* Communication System: OFDM 2450 MHz; Frequency: 2437 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 1.97888 mho/m, ε_r = 52.88; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.2, 4.2, 4.2)
- Phantom: Flat Phantom 10.1; Serial: P 10.1; Phantom section: Flat 2.2 Section

Channel 06 Test/Area Scan (101x81x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 0.507 mW/g

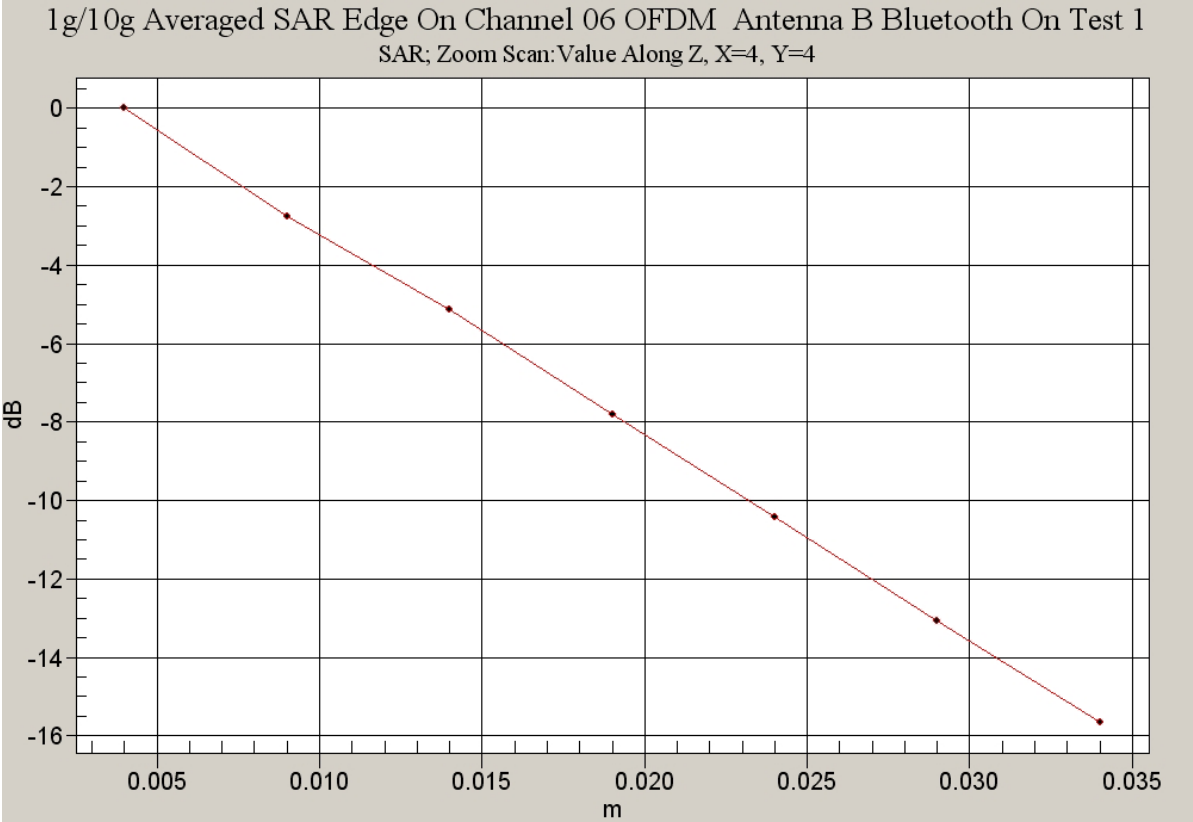
Channel 06 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 16.4 V/m; Power Drift = 0.396 dB
Peak SAR (extrapolated) = 1.01 W/kg
SAR(1 g) = 0.442 mW/g; SAR(10 g) = 0.184 mW/g
Maximum value of SAR (measured) = 0.495 mW/g



0 dB = 0.495mW/g

SAR MEASUREMENT PLOT 13

Ambient Temperature	**20.2 Degrees Celsius**
Liquid Temperature	**20.0 Degrees Celsius**
Humidity	**63.0 %**

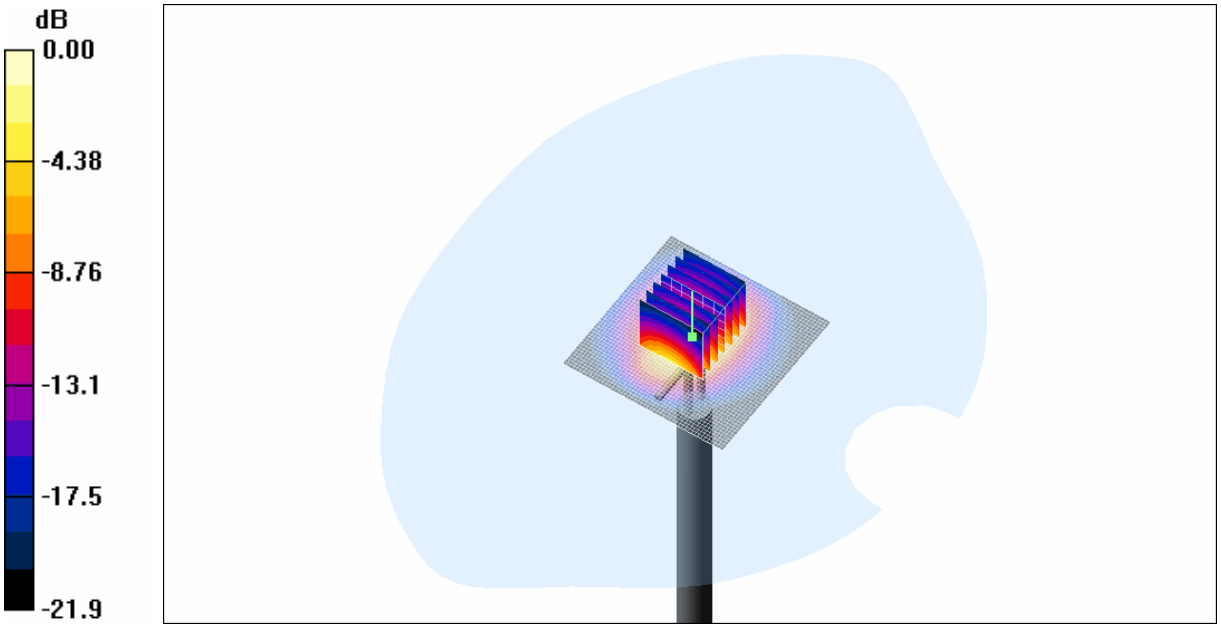


Test Date: 30 April 2007
File Name: Validation 2450 MHz (DAE442 Probe1377) 30-04-07.da4
DUT: Dipole 2450 MHz; Type: DV2450V2; Serial: 724

* Communication System: CW 2450 MHz; Frequency: 2450 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 1.77976 mho/m, ε_r = 38.9465; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.49, 4.49, 4.49)
- Phantom: SAM 22; Serial: 1260; Phantom section: Flat Section

Channel 1 Test/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 17.9 mW/g

Channel 1 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 95.3 V/m; Power Drift = 0.040 dB
Peak SAR (extrapolated) = 28.5 W/kg
SAR(1 g) = 13.3 mW/g; SAR(10 g) = 6.28 mW/g
Maximum value of SAR (measured) = 14.9 mW/g



0 dB = 14.9mW/g

SAR MEASUREMENT PLOT 14

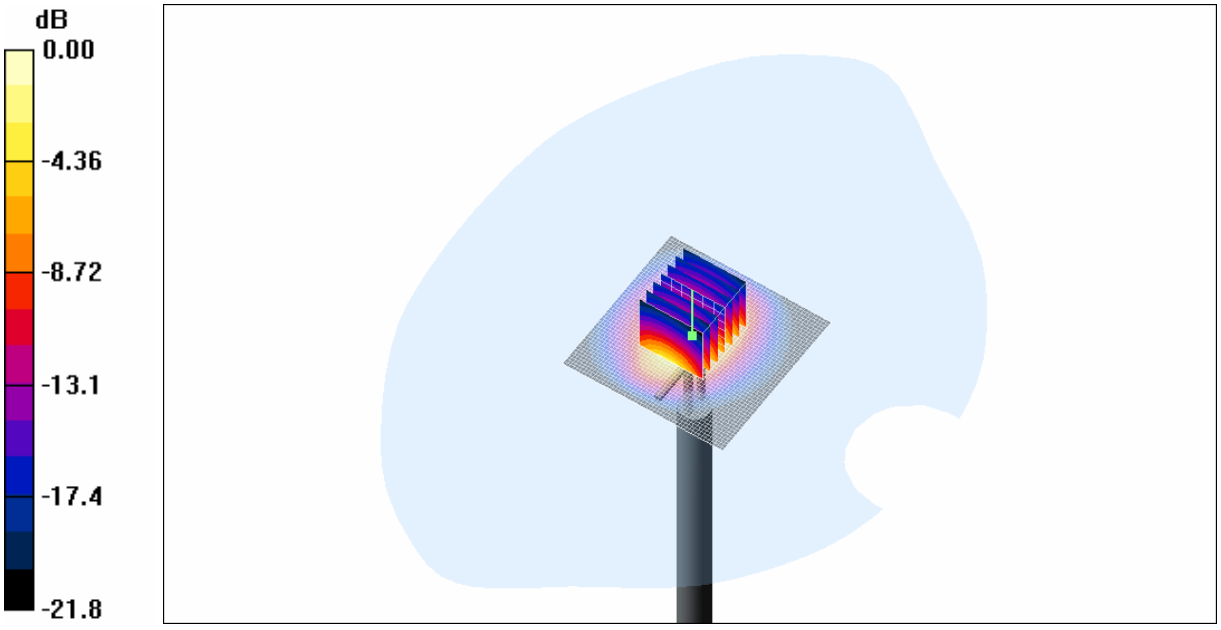
Ambient Temperature	**20.1 Degrees Celsius**
Liquid Temperature	**19.8 Degrees Celsius**
Humidity	**61.0 %**

Test Date: 01 May 2007
File Name: Validation 2450 MHz (DAE442 Probe1377) 01-05-07.da4
DUT: Dipole 2450 MHz; Type: DV2450V2; Serial: 724

* Communication System: CW 2450 MHz; Frequency: 2450 MHz; Duty Cycle: 1:1
* Medium parameters used: σ = 1.8048 mho/m, ε_r = 39.8367; ρ = 1000 kg/m^3
- Electronics: DAE3 Sn442; Probe: ET3DV6 - SN1377; ConvF(4.49, 4.49, 4.49)
- Phantom: SAM 22; Serial: 1260; Phantom section: Flat Section

Channel 1 Test/Area Scan (51x51x1): Measurement grid: dx=15mm, dy=15mm
Maximum value of SAR (interpolated) = 18.3 mW/g

Channel 1 Test/Zoom Scan (7x7x7)/Cube 0: Measurement grid: dx=5mm, dy=5mm, dz=5mm
Reference Value = 96.1 V/m; Power Drift = 0.041 dB
Peak SAR (extrapolated) = 29.6 W/kg
SAR(1 g) = 13.8 mW/g; SAR(10 g) = 6.47 mW/g
Maximum value of SAR (measured) = 15.3 mW/g



0 dB = 15.3mW/g

SAR MEASUREMENT PLOT 15

Ambient Temperature	**20.2 Degrees Celsius**
Liquid Temperature	**20.0 Degrees Celsius**
Humidity	**63.0 %**